City and County of Honolulu
Department of Transportation Services

Rapid Transit Division (RTD)

PEARL HIGHLANDS STATION & PARKING STRUCTURE DESIGN

CONTRACT SV-245

PRELIMINARY ENGINEERING DRAWINGS

September 11, 2009

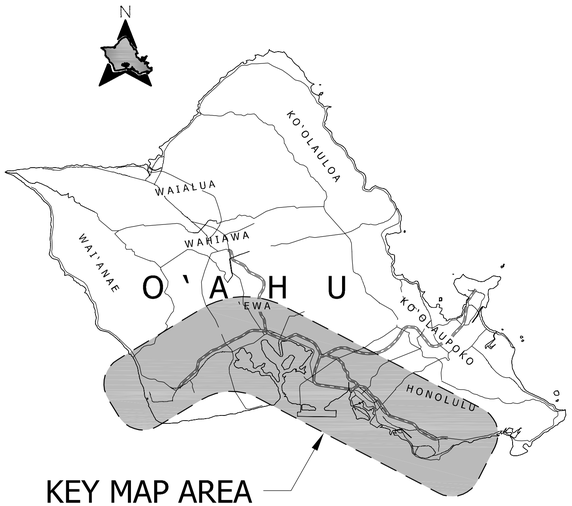
Prepared for:
HHCTCP

Prepared by:
Parsons Brinckerhoff
General Engineering Consultant (GEC)

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

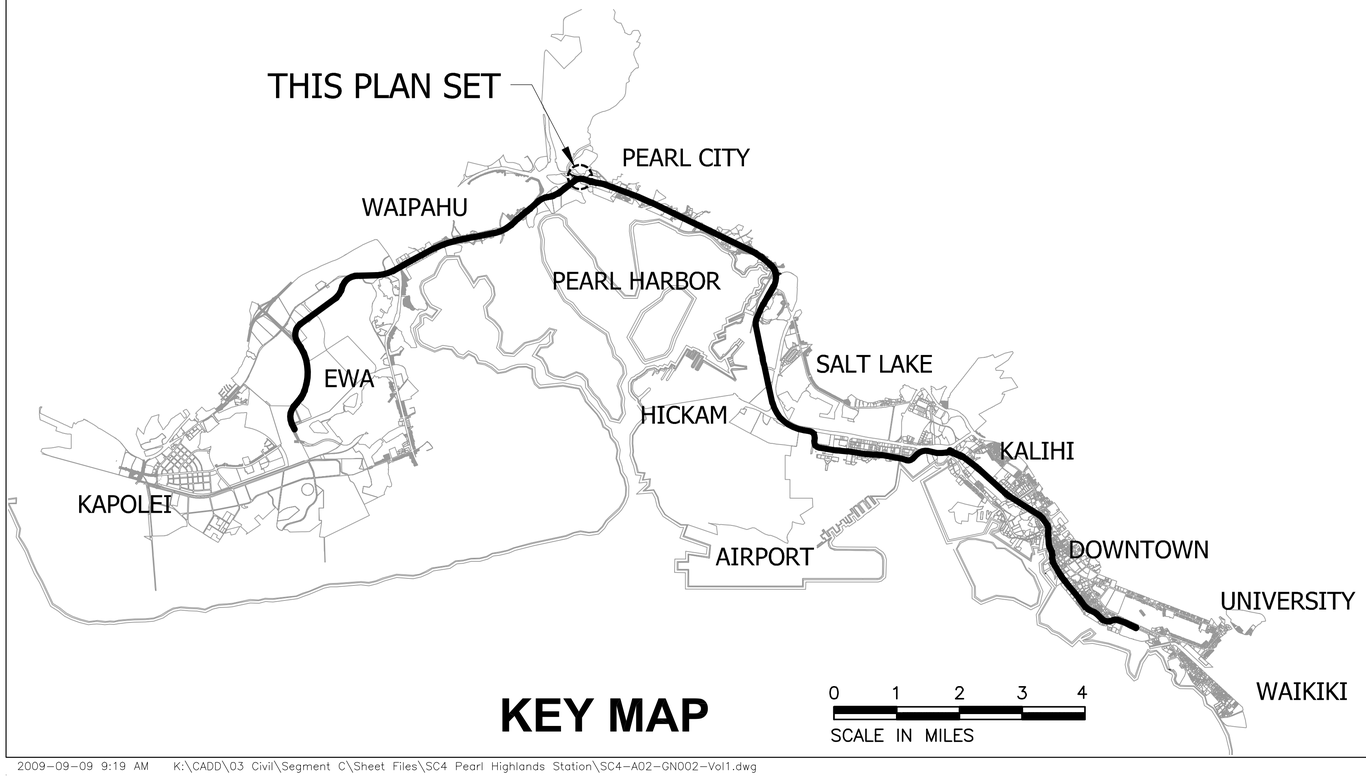
PEARL HIGHLANDS STATION & PARKING STRUCTURE

PRELIMINARY ENGINEERING DRAWINGS



City and County of Honolulu
Department of Transportation Services

Rapid Transit Division



KEY MAP

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Rev	By	Date	Description
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PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: J Derosier
Checked: J Davis
Approved: M Hall
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

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Rev	By	Date	Description
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PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: J Derosier
Checked: J Davis
Approved: M Hall
Date: 09-11-09

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CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

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Rev	By	Date	Description
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1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

APPENDIX A - INFORMATIVE DRAWINGS
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CADD File: SC4-A03-GN005
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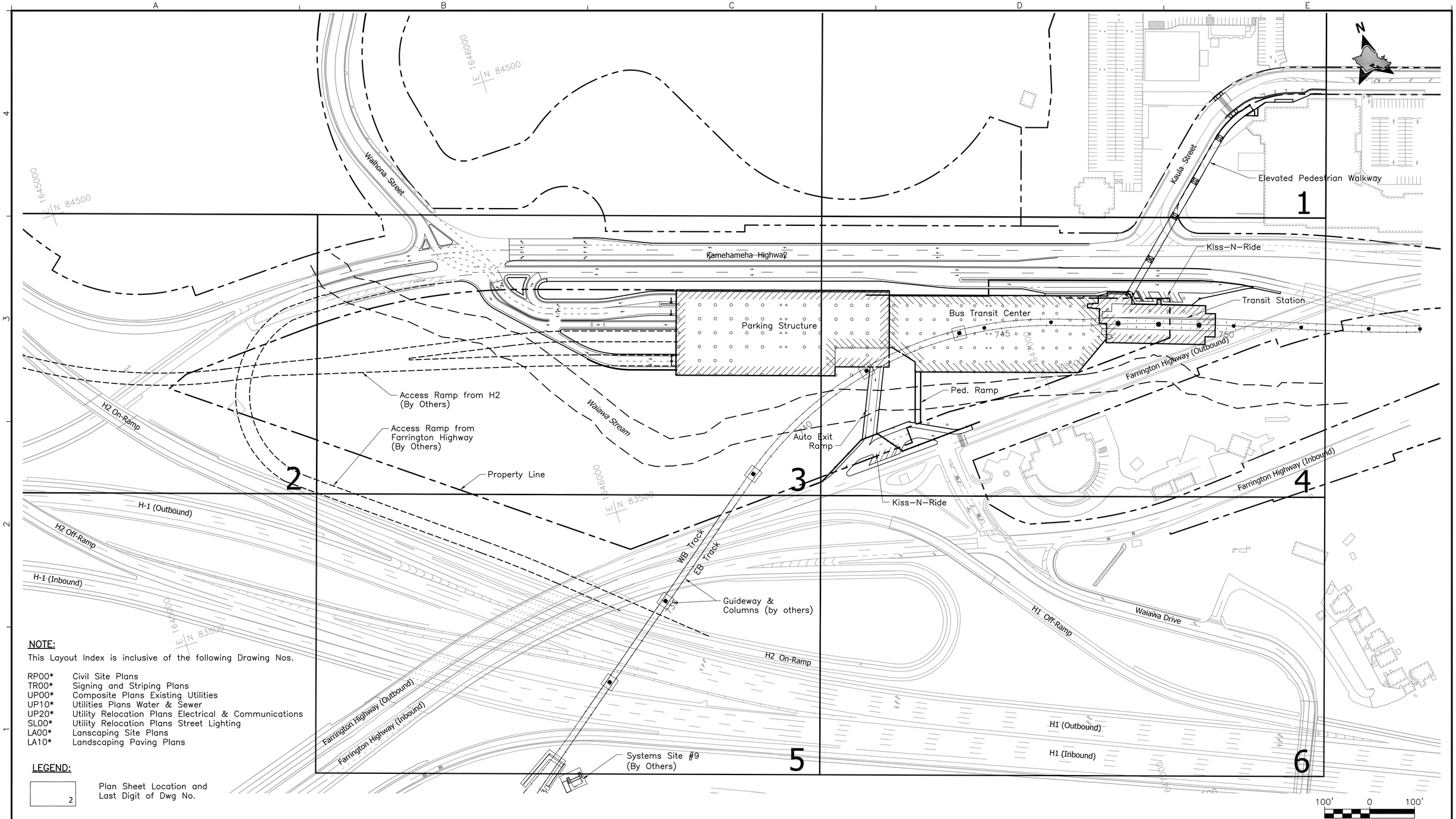

NOTE:

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TR00*	Signing and Striping Plans
UP00*	Composite Plans Existing Utilities
UP10*	Utilities Plans Water & Sewer
UP20*	Utility Relocation Plans Electrical & Communications
SL00*	Utility Relocation Plans Street Lighting
LA00*	Lanscaping Site Plans
LA10*	Landscaping Paving Plans

LEGEND:

2 — Plan Sheet Location and Last Digit of Dwg No.

Rev	By	Date	Description
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PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: M Hall
Drawn: J Derosier
Checked: J Davis
Approved: A Borst
Date: 09–11–09

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1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION & PARKING STRUCTURE

STATION AREA PLAN AND LAYOUT INDEX

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RTD STANDARD DRAWINGS

RTD STANDARD DRAWINGS				
File	**Drawing No.**	**Applicable**	**Drawing Title**	**Date**
CIVIL				
RTD-B02-CS001	CS001		CIVIL STANDARD SURVEY CONTROL DATA SHEET 1 OF 2	24-Aug-09
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RTD-E03-WS307	WS307		TRACKWORK STANDARD SPECIAL TRACKWORK FASTENING PLATE AND ASSEMBLY CONCRETE SWITCHTIES	24-Aug-09
RTD-E03-WS308	WS308		TRACKWORK STANDARD NO. 8 TURNOUT BALLASTED/ CONCRETE TIES WITH 13 FT CURVED SWITCHES (UNIFORM RISERS)	24-Aug-09
RTD-E03-WS310	WS310		TRACKWORK STANDARD NO. 8 CONTOURED STEEL FROG FLANGEBEARING BALLASTED TRACK - 115 RE RAIL	24-Aug-09
RTD-E03-WS313	WS313		TRACKWORK STANDARD NO. 6 CROSSOVER - BALLASTED TRACK 14'-0" TRACK CENTERS	24-Aug-09
RTD-E03-WS314	WS314		TRACKWORK STANDARD NO 8 SINGLE CROSSOVER BALLASTED/CONCRETE TIES 14'-0" TRACK CENTERS	24-Aug-09
RTD-E03-WS321	WS321		TRACKWORK STANDARD PRESTRESSED TURNOUT CONCRETE SWITCH TIES 115 RE RAIL	24-Aug-09
RTD-E03-WS340	WS340		TRACKWORK STANDARD NO. 10 TURNOUT - BALLASTED CONCRETE TIES WITH 19'-6" CURVED SWITCH UNIFORM RISERS	24-Aug-09
RTD-E03-WS801	WS801		TRACKWORK STANDARD SUMMARY MAINLINE SPECIAL TRACKWORK DIRECT FIXATION TURNOUTS, CROSSOVERS, DOUBLE CROSSOVERS & CROSSING DIAMONDS SHEET 1 OF 2	24-Aug-09
RTD-E03-WS802	WS802		TRACKWORK STANDARD SUMMARY MAINLINE SPECIAL TRACKWORK DIRECT FIXATION TURNOUTS, CROSSOVERS, DOUBLE CROSSOVERS & CROSSING DIAMONDS SHEET 2 OF 2	24-Aug-09
RTD-E03-WS810	WS810		TRACKWORK STANDARD NO. 10 TURNOUT - DIRECT FIXATION WITH 19'-6" CURVED SWITCH PLINTH & RAIL LAYOUT	24-Aug-09

RTD STANDARD DRAWINGS				
File	**Drawing No.**	**Applicable**	**Drawing Title**	**Date**
TRACKWORK				
RTD-E03-WS811	WS811		TRACKWORK STANDARD NO. 10 TURNOUT - DIRECT FIXATION NOTES & BILL OF MATERIALS	24-Aug-09
RTD-E03-WS812	WS812		TRACKWORK STANDARD 19'-6" CURVED SPLIT SWITCH DIRECT FIXATION TRACK 115RE RAIL	24-Aug-09
RTD-E03-WS813	WS813		TRACKWORK STANDARD NO. 10 CONTOURED STEEL FROG FLANGEBEARING DIRECT FIXATION TRACK - 115RE RAIL	24-Aug-09
RTD-E03-WS814	WS814		TRACKWORK STANDARD DIRECT FIXATION TURNOUT GUARD RAIL MOUNTING DETAILS	24-Aug-09
RTD-E03-WS815	WS815		TRACKWORK STANDARD NO. 15 TURNOUT - DIRECT FIXATION WITH 26'-0" CURVED SWITCH PLINTH & RAIL LAYOUT, SHEET 1 OF 2	24-Aug-09
RTD-E03-WS816	WS816		TRACKWORK STANDARD NO. 15 TURNOUT - DIRECT FIXATION WITH 26'-0" CURVED SWITCH PLINTH & RAIL LAYOUT, SHEET 2 OF 2	24-Aug-09
RTD-E03-WS817	WS817		TRACKWORK STANDARD 26'-0" CURVED SPLIT SWITCH DIRECT FIXATION TRACK 115RE RAIL	24-Aug-09
RTD-E03-WS820	WS820		TRACKWORK STANDARD NO. 10 CROSSOVER - DIRECT FIXATION 14'-0" TRACK CENTERS	24-Aug-09
RTD-E03-WS831	WS831		TRACKWORK STANDARD NO. 10 DOUBLE CROSSOVER DIRECT FIXATION 14'-0" TRACK CENTERS	24-Aug-09
RTD-E03-WS832	WS832		TRACKWORK STANDARD NO. 10 DOUBLE CROSSOVER DIRECT FIXATION DIAMOND DETAILS 14'-0" TRACK CENTERS, SHEET 1 OF 2	24-Aug-09
RTD-E03-WS833	WS833		TRACKWORK STANDARD NO. 10 DOUBLE CROSSOVER-DIRECT FIXATION TURNOUT FROG & DIAMOND FROG DETAILS 14'-0" TRACK CENTERS, SHEET 2 OF 2	24-Aug-09
RTD-E03-WS898	WS898		TRACKWORK STANDARD FRICTION TYPE (10EB) BUFFER STOP DIRECT FIXATION TRACK INSTALLATION END OF TRACK	24-Aug-09
RTD-E03-WS899	WS899		TRACKWORK STANDARD DF FRICTION BUFFER STOP INSTALLATION END OF TRACK DETAILS	24-Aug-09
ARCHITECTURAL				
RTD-H09-AS301	AS301		ARCHITECTURAL STANDARD ELEVATOR CAR PLANS TYPE D-1A & H-1A AND ELEVATIONS	24-Aug-09
RTD-H09-AS302	AS302		ARCHITECTURAL STANDARD ELEVATOR CAR PLANS TYPE D-2A & H-2A AND ELEVATIONS	24-Aug-09
RTD-H09-AS303	AS303		ARCHITECTURAL STANDARD ELEVATOR CAR DETAILS	24-Aug-09

RTD STANDARD DRAWINGS				
File	**Drawing No.**	**Applicable**	**Drawing Title**	**Date**
CORROSION CONTROL				
RTD-M01-HS001	HS001		CORROSION CONTROL STANDARD STRUCTURAL BONDING DETAILS SHEET 1 OF 2	24-Jul-09
RTD-M01-HS002	HS002		CORROSION CONTROL STANDARD STRUCTURAL BONDING DETAILS SHEET 2 OF 2	24-Jul-09
RTD-M01-HS003	HS003		CORROSION CONTROL STANDARD UTILITY BONDING DETAILS SHEET 1 OF 2	24-Jul-09
RTD-M01-HS004	HS004		CORROSION CONTROL STANDARD UTILITY BONDING DETAILS SHEET 2 OF 2	24-Jul-09
RTD-M01-HS005	HS005		CORROSION CONTROL STANDARD PIPE ISOLATION DETAILS SHEET 1 OF 2	24-Jul-09
RTD-M01-HS006	HS006		CORROSION CONTROL STANDARD PIPE ISOLATION DETAILS SHEET 2 OF 2	24-Jul-09
RTD-M01-HS007	HS007		CORROSION CONTROL STANDARD CATHODIC PROTECTION DETAILS SHEET 1 OF 2	24-Jul-09
RTD-M01-HS008	HS008		CORROSION CONTROL STANDARD CATHODIC PROTECTION DETAILS SHEET 2 OF 2	24-Jul-09
RTD-M01-HS009	HS009		CORROSION CONTROL STANDARD ELEVATOR CATHODIC PROTECTION DETAILS	24-Jul-09
RTD-M01-HS010	HS010		CORROSION CONTROL STANDARD TESTING FACILITIES	24-Jul-09

Rev	By	Date	Description

Designed: N/A
Drawn: J Derosier
Checked: J Davis
Approved: A Borst
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

STANDARD DRAWING SUMMARY
CITY AND COUNTY OF HONOLULU (RTD)

Contract No.: SV-245
CADD File: SC4-A06-GN007
Drawing No.: GN007 Rev.
Scale: N/A
Page No. 6 of 180

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RTD DIRECTIVE DRAWINGS

RTD DIRECTIVE DRAWINGS				
File	**Drawing No.**	**Applicable**	**Drawing Title**	**Date**
SYSTEMS SITES				
DD-B10-RP101	RP101		SYSTEMS SITE DIRECTIVE TYPICAL TRACTION POWER SUBSTATION SITE PLAN AND ELEVATIONS	24-Aug-09
DD-B10-R0102	RP102		SYSTEMS SITE DIRECTIVE TYPICAL GAP BREAKER STATION SITE PLAN AND ELEVATIONS	24-Aug-09
TRACKWORK				
DD-E03-WD120	WD120		TRACKWORK DIRECTIVE PRE-CURVED RAIL DETAILS RESTRAINING RAIL DETAILS TYPICAL LAYOUT	24-Aug-09
DD-E03-WD201	WD201		TRACKWORK DIRECTIVE BALLASTED MAINLINE TRACK CONCRETE CROSS TIES TANGENT AND CURVED TRACK	24-Aug-09
DD-E03-WD202	WD202		TRACKWORK DIRECTIVE BALLASTED MAINLINE TRACK CONCRETE CROSSTIES TANGENT AND CURVED TRACK- DOUBLE TRACK	24-Aug-09
DD-E03-WD205	WD205		TRACKWORK DIRECTIVE AT-GRADE CONCRETE PANEL ROAD CROSSING - TANGENT BALLASTED TRACK	24-Aug-09
DD-E03-WD206	WD206		TRACKWORK DIRECTIVE AT-GRADE TRAPEZOIDAL CONCRETE PANEL ROAD CROSSING - CURVED BALLASTED TRACK	24-Aug-09
DD-E03-WD211	WD211		TRACKWORK DIRECTIVE TRANSITION SLAB - DIRECT FIXATION TRACK TO BALLASTED TRACK 115 RE RAIL	24-Aug-09
DD-E03-WD251	WD251		TRACKWORK DIRECTIVE SERRATED PRESTRESSED CONCRETE CROSSTIE 115 RE RAIL	24-Aug-09
DD-E03-WD253	WD253		TRACKWORK DIRECTIVE SERRATED CONCRETE CROSSTIE FOR RESTRAINING RAIL & CONTACT RAIL 115 RE RAIL	24-Aug-09
DD-E03-WD254	WD254		TRACKWORK DIRECTIVE BRACKET FOR 33C1 RESTRAINING RAIL CONCRETE TIE TRACK	24-Aug-09
DD-E03-WD256	WD256		TRACKWORK DIRECTIVE CONCRETE ROAD CROSSING TIE (10 FT) - 115RE RAIL	24-Aug-09
DD-E03-WD275	WD275		TRACKWORK DIRECTIVE DERAIL AND CAR STOP MSF YARD	24-Aug-09
DD-E03-WD401	WD401		TRACKWORK DIRECTIVE EMBEDDED APRON AND SHOP TRACK DETAILS	24-Aug-09
DD-E03-WD405	WD405		TRACKWORK DIRECTIVE PEDESTAL TRACK DETAILS MSF PIT TRACKS	24-Aug-09
DD-E03-WD601	WD601		TRACKWORK DIRECTIVE TYPICAL DIRECT FIXATION TRACK INSTALLATION	24-Aug-09
DD-E03-WD602	WD602		TRACKWORK DIRECTIVE DIRECT FIXATION TRACK DETAILS AERIAL/AT-GRADE SLAB STRUCTURES TANGENT TRACK	24-Aug-09
DD-E03-WD603	WD603		TRACKWORK DIRECTIVE DIRECT FIXATION TRACK SECTION AERIAL/AT-GRADE STRUCTURE CURVED TRACK	24-Aug-09
DD-E03-WD604	WD604		TRACKWORK DIRECTIVE GEOMETRIC CONFIGURATION DIRECT FIXATION TRACK WITH SURVEY MARKER INTERFACE TRACTION POWER CONTACT RAIL	24-Aug-09
DD-E03-WD605	WD605		TRACKWORK DIRECTIVE DIRECT FIXATION TRACK DETAILS VEHICLE WASH FACILITY	24-Aug-09
DD-E03-WD606	WD606		TRACKWORK DIRECTIVE DIRECT FIXATION TRACK DETAILS YARD SERVICE & CLEANING PLATFORM	24-Aug-09
DD-E03-WD608	WD608		TRACKWORK DIRECTIVE DIRECT FIXATION TRACK CONCRETE PLINTH REINFORCING DETAILS FOR 2'-3" FASTENER LAYOUTS ON CURVED TRACKS	24-Aug-09

RTD DIRECTIVE DRAWINGS				
File	**Drawing No.**	**Applicable**	**Drawing Title**	**Date**
TRACKWORK				
DD-E03-WD609	WD609		TRACKWORK DIRECTIVE DIRECT FIXATION TRACK CONCRETE PLINTH REINFORCING DETAILS FOR 2'-6" FASTENER LAYOUTS	24-Aug-09
DD-E03-WD615	WD615		TRACKWORK DIRECTIVE DIRECT FIXATION TRACK PLINTH REINFORCING DETAILS WITH 1 OR 2 INCHES OF SUPERELEVATION	24-Aug-09
DD-E03-WD616	WD616		TRACKWORK DIRECTIVE DIRECT FIXATION TRACK PLINTH REINFORCING DETAILS WITH 3 OR 4 INCHES OF SUPERELEVATION	24-Aug-09
DD-E03-WD620	WD620		TRACKWORK DIRECTIVE SPECIAL TRACKWORK DIRECT FIXATION CONCRETE PLINTH REINFORCING DETAILS	24-Aug-09
DD-E03-WD625	WD625		TRACKWORK DIRECTIVE SPECIAL TRACKWORK SWITCH MACHINE MOUNTING DIRECT FIXATION TRACK	24-Aug-09
DD-E03-WD641	WD641		TRACKWORK DIRECTIVE BRACKET FOR 33C1 RESTRAINING RAIL DIRECT FIXATION TRACK	24-Aug-09
DD-E03-WD643	WD643		TRACKWORK DIRECTIVE 33C1 RESTRAINING RAIL DETAILS	24-Aug-09
DD-E03-WD650	WD650		TRACKWORK DIRECTIVE BALLASTED & DIRECT FIXATION TRACK AT STATION PLATFORMS (LIGHT METRO VEHICLE)	24-Aug-09
DD-E03-WD675	WD675		TRACKWORK DIRECTIVE PEDESTRIAN CROSSWALK DIRECT FIXATION TRACK	24-Aug-09
DD-E04-WD701	WD701		TRACKWORK DIRECTIVE QUANTITIES - TRACK MATERIAL MAINLINE	24-Aug-09
STRUCTURAL				
DD-G02-WP001	WP001		INDEX OF PAGES AND NOTES	24-Aug-09
DD-G11-WP002	WP002		STRUCTURAL DESIGN DIRECTVE CHAIN LINK FENCE	24-Aug-09
DD-G11-WP003	WP003		STRUCTURAL DESIGN DIRECTVE RETAINING WALL TYPE 1 H=4' THROUGH 30'	24-Aug-09
DD-G11-WP004	WP004		STRUCTURAL DESIGN DIRECTVE RETAINING WALL TYPE 2 H=4' THROUGH 12'	24-Aug-09
DD-G11-WP005	WP005		STRUCTURAL DESIGN DIRECTVE RETAINING WALL DETAILS	24-Aug-09
DD-G11-WP006	WP006		STRUCTURAL DESIGN DIRECTVE GUIDEWAY STAIRS TO STATION PLATFORM SHEET 1 OF 5	24-Aug-09
DD-G11-WP007	WP007		STRUCTURAL DESIGN DIRECTVE GUIDEWAY STAIRS TO STATION PLATFORM SHEET 2 OF 5	24-Aug-09
DD-G11-WP008	WP008		STRUCTURAL DESIGN DIRECTVE GUIDEWAY STAIRS TO STATION PLATFORM SHEET 3 OF 5	24-Aug-09
DD-G11-WP009	WP009		STRUCTURAL DESIGN DIRECTVE GUIDEWAY STAIRS TO STATION PLATFORM SHEET 4 OF 5	24-Aug-09
DD-G11-WP010	WP010		STRUCTURAL DESIGN DIRECTVE GUIDEWAY STAIRS TO STATION PLATFORM SHEET 5 OF 5	24-Aug-09
DD-G11-WP011	WP011		STRUCTURAL DESIGN DIRECTVE WATERPROOFING DETAILS SHEET 1 OF 3	24-Aug-09
DD-G11-WP012	WP012		STRUCTURAL DESIGN DIRECTVE WATERPROOFING DETAILS SHEET 2 OF 3	24-Aug-09
DD-G11-WP013	WP013		STRUCTURAL DESIGN DIRECTVE WATERPROOFING DETAILS SHEET 3 OF 3	24-Aug-09
ARCHITECTURAL				
DD-H01-AG001	AG001		ARCHITECTURAL DIRECTIVE GENERAL ARCHITECTURAL NOTES, SYMBOLS, AND ABBREVIATIONS SHEET 1 OF 3	24-Aug-09

RTD DIRECTIVE DRAWINGS				
File	**Drawing No.**	**Applicable**	**Drawing Title**	**Date**
ARCHITECTURAL				
DD-H01-AG002	AG002		ARCHITECTURAL DIRECTIVE GENERAL ARCHITECTURAL NOTES, SYMBOLS, AND ABBREVIATIONS SHEET 2 OF 2	24-Aug-09
DD-H01-AG003	AG003		ARCHITECTURAL DIRECTIVE GENERAL ARCHITECTURAL NOTES, SYMBOLS, AND ABBREVIATIONS SHEET 3 OF 3	24-Aug-09
DD-H09-AD001	AD001		ARCHITECTURAL DIRECTIVE STAIR/ESCALATOR DESIGN LAYOUT	24-Aug-09
DD-H09-AD002	AD002		ARCHITECTURAL DIRECTIVE STAIR/ESCALATOR DESIGN REQUIREMENTS	24-Aug-09
DD-H09-AD003	AD003		ARCHITECTURAL DIRECTIVE TRACTION ELEVATOR DESIGN REQUIREMENT AND CONFIGURATION	24-Aug-09
DD-H09-AD004	AD004		ARCHITECTURAL DIRECTIVE HYDRAULIC ELEVATOR DESIGN REQUIREMENT AND CONFIGURATION	24-Aug-09
DD-H09-AD005	AD005		ARCHITECTURAL DIRECTIVE HOLELESS HYDRAULIC ELEVATOR DESIGN REQUIREMENT AND CONFIGURATION	24-Aug-09
DD-H09-AD006	AD006		ARCHITECTURAL DIRECTIVE ELEVATOR HOISTWAY SECTIONS	24-Aug-09
DD-H09-AD007	AD007		ARCHITECTURAL DIRECTIVE END OF PLATFORM DESIGN LAYOUT SIDE PLATFORM	24-Aug-09
DD-H09-AD008	AD008		ARCHITECTURAL DIRECTIVE END OF PLATFORM DESIGN LAYOUT CENTER PLATFORM	24-Aug-09
DD-H09-AD009	AD009		ARCHITECTURAL DIRECTIVE STAIR/ESCALATOR DETAILS	24-Aug-09
DD-H09-AD010	AD010		ARCHITECTURAL DIRECTIVE FORMLINER DETAILS PIER COLUMN 1	24-Aug-09
DD-H09-AD011	AD011		ARCHITECTURAL DIRECTIVE FORMLINER DETAILS STATION COLUMN 2	24-Aug-09
DD-H09-AD012	AD012		ARCHITECTURAL DIRECTIVE FORMLINER DETAILS COLUMN SECTIONS	24-Aug-09
DD-H09-AD013	AD013		ARCHITECTURAL DIRECTIVE STAIR/ESCALATOR 1 LANDING REQUIREMENTS - CONCOURSE LEVEL	24-Aug-09
DD-H09-AD014	AD014		ARCHITECTURAL DIRECTIVE STAIR/ESCALATOR 2 LANDINGS REQUIREMENTS - CONCOURSE LEVEL	24-Aug-09
DD-H09-AD015	AD015		ARCHITECTURAL DIRECTIVE ELEVATOR HOISTWAY PLANS, SECTION, AND DETAILS	24-Aug-09
DD-H09-AD016	AD016		ARCHITECTURAL DIRECTIVE ELEVATOR HOISTWAY SECTION AND DETAILS	24-Aug-09
DD-H09-AD017	AD017		ARCHITECTURAL DIRECTIVE ELEVATOR HOISTWAY ELEVATIONS, DATA TABULATION, AND DETAILS	24-Aug-09
DD-H09-AD018	AD018		ARCHITECTURAL DIRECTIVE ELEVATOR SCHEDULE SHEET 1 OF 2	24-Aug-09
DD-H09-AD019	AD019		ARCHITECTURAL DIRECTIVE ELEVATOR SCHEDULE SHEET 2 OF 2	24-Aug-09
DD-H09-AD020	AD020		ARCHITECTURAL DIRECTIVE TYPICAL TOILET LAYOUT AND ELEVATIONS	24-Aug-09
DD-H09-AD021	AD021		ARCHITECTURAL DIRECTIVE TACTILE WARNING PAVER DETAILS	24-Aug-09
DD-H09-AD101	AD101		ARCHITECTURAL DIRECTIVE CONCOURSE LEVEL PLAN SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD102	AD102		ARCHITECTURAL DIRECTIVE PLATFORM LEVEL PLAN SIDE PLATFORM PROTOTYPE	24-Aug-09

Rev	By	Date	Description

Designed: N/A
Drawn: J Derosier
Checked: J Davis
Approved: A Borst
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

DIRECTIVE DRAWING SUMMARY
CITY AND COUNTY OF HONOLULU (RTD)

SHEET 1 OF 2

Contract No.: SV-245
CADD File: SC4-A06-GN008
Drawing No.: GN008 Rev.:
Scale: N/A
Page No.: 7 of 180

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RTD DIRECTIVE DRAWINGS

RTD DIRECTIVE DRAWINGS				
File	**Drawing No.**	**Applicable**	**Drawing Title**	**Date**
			ARCHITECTURAL	
DD-H09-AD103	AD103		ARCHITECTURAL DIRECTIVE ROOF PLAN SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD104	AD104		ARCHITECTURAL DIRECTIVE CONCOURSE REFLECTED CEILING PLAN SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD105	AD105		ARCHITECTURAL DIRECTIVE PLATFORM REFLECTED CEILING PLAN SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD106	AD106		ARCHITECTURAL DIRECTIVE FLOOR FINISH PLAN - CONCOURSE SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD107	AD107		ARCHITECTURAL DIRECTIVE FLOOR FINISH PLAN - PLATFORM SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD108	AD108		ARCHITECTURAL DIRECTIVE LONGITUDINAL & CROSS SECTIONS SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD111	AD111		ARCHITECTURAL DIRECTIVE INTERIOR ELEVATIONS SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD112	AD112		ARCHITECTURAL DIRECTIVE ENLARGED ELEVATIONS SIDE PLATFORM PROTOTYPE SHEET 1 OF 2	24-Aug-09
DD-H09-AD114	AD114		ARCHITECTURAL DIRECTIVE ENLARGED ELEVATIONS SIDE PLATFORM PROTOTYPE SHEET 2 OF 2	24-Aug-09
DD-H09-AD116	AD116		ARCHITECTURAL DIRECTIVE TYPICAL BAY SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD117	AD117		ARCHITECTURAL DIRECTIVE PLATFORM CANOPY DETAILS SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD118	AD118		ARCHITECTURAL DIRECTIVE STAIR & BRIDGE CANOPY DETAILS SIDE PLATFORM PROTOTYPE SHEET 1 OF 2	24-Aug-09
DD-H09-AD119	AD119		ARCHITECTURAL DIRECTIVE STAIR & BRIDGE CANOPY DETAILS SIDE PLATFORM PROTOTYPE SHEET 2 OF 2	24-Aug-09
DD-H09-AD120	AD120		ARCHITECTURAL DIRECTIVE GUARDRAIL DETAILS SIDE PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD122	AD122		ARCHITECTURAL DIRECTIVE 3D VIEWS SIDE PLATFORM PROTOTYPE SHEET 1 OF 3	24-Aug-09
DD-H09-AD123	AD123		ARCHITECTURAL DIRECTIVE 3D VIEWS SIDE PLATFORM PROTOTYPE SHEET 2 OF 3	24-Aug-09
DD-H09-AD124	AD124		ARCHITECTURAL DIRECTIVE 3D VIEWS SIDE PLATFORM PROTOTYPE SHEET 3 OF 3	24-Aug-09
DD-H09-AD201	AD201		ARCHITECTURAL DIRECTIVE CONCOURSE LEVEL PLAN CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD202	AD202		ARCHITECTURAL DIRECTIVE PLATFORM LEVEL PLAN CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD203	AD203		ARCHITECTURAL DIRECTIVE ROOF PLAN CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD204	AD204		ARCHITECTURAL DIRECTIVE CONCOURSE REFLECTED CEILING PLAN CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD205	AD205		ARCHITECTURAL DIRECTIVE PLATFORM REFLECTED CEILING PLAN CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD206	AD206		ARCHITECTURAL DIRECTIVE CONCOURSE FLOOR FINISH PLAN CENTER PLATFORM PROTOTYPE	24-Aug-09

RTD DIRECTIVE DRAWINGS				
File	**Drawing No.**	**Applicable**	**Drawing Title**	**Date**
			ARCHITECTURAL	
DD-H09-AD207	AD207		ARCHITECTURAL DIRECTIVE PLATFORM FLOOR FINISH PLAN CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD208	AD208		ARCHITECTURAL DIRECTIVE LONGITUDINAL & CROSS SECTIONS CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD210	AD210		ARCHITECTURAL DIRECTIVE TYPICAL BAY END CONDITION DETAILS CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD211	AD211		ARCHITECTURAL DIRECTIVE TYPICAL BAY DETAILS CENTER PLATFORM PROTOTYPE SHEET 1 OF 2	24-Aug-09
DD-H09-AD212	AD212		ARCHITECTURAL DIRECTIVE TYPICAL BAY DETAILS CENTER PLATFORM PROTOTYPE SHEET 2 OF 2	24-Aug-09
DD-H09-AD214	AD214		ARCHITECTURAL DIRECTIVE PLATFORM CANOPY DETAILS CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD215	AD215		ARCHITECTURAL DIRECTIVE STAIR & BRIDGE CANOPY DETAILS CENTER PLATFORM PROTOTYPE SHEET 1 OF 2	24-Aug-09
DD-H09-AD216	AD216		ARCHITECTURAL DIRECTIVE STAIR & BRIDGE CANOPY DETAILS CENTER PLATFORM PROTOTYPE SHEET 2 OF 2	24-Aug-09
DD-H09-AD217	AD217		ARCHITECTURAL DIRECTIVE GUARDRAIL DETAILS CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD218	AD218		ARCHITECTURAL DIRECTIVE MISC DETAILS CENTER PLATFORM PROTOTYPE	24-Aug-09
DD-H09-AD219	AD219		ARCHITECTURAL DIRECTIVE 3D VIEWS CENTER PLATFORM PROTOTYPE	24-Aug-09
			MECHANICAL	
DD-K01-MD001	MD001		MECHANICAL DIRECTIVE GENERAL MECHANICAL NOTES, SYMBOLS, AND ABBREVIATIONS	24-Aug-09
DD-K11-MD101	MD101		MECHANICAL DIRECTIVE HVAC SYSTEMS	24-Aug-09
DD-K11-MD201	MD201		MECHANICAL DIRECTIVE PLUMBING AND DRAINAGE SYSTEMS	24-Aug-09
DD-K11-MD301	MD301		MECHANICAL DIRECTIVE FIRE PROTECTION SYSTEMS	24-Aug-09
DD-K11-MD401	MD401		MECHANICAL DIRECTIVE SEISMIC AND WIND INDICATOR SYSTEMS	24-Aug-09
DD-K11-MD501	MD501		MECHANICAL DIRECTIVE TYPICAL TPSS AND GBS AIR CONDITIONING AND CONTROL SYSTEM	24-Aug-09
			ELECTRICAL	
DD-L01-ED001	ED001	IN PROGRESS	GUIDEWAY ELECTRICAL DIRECTIVE GENERAL ELECTRICAL NOTES, SYMBOLS, AND ABBREVIATIONS	3-Apr-09
DD-L03-ED002	ED002	IN PROGRESS	ELECTRICAL DIRECTIVE TYPICAL PASSENGER STATION ONE-LINE DIAGRAM	3-Jun-09
DD-L05-ED003	ED003	IN PROGRESS	GUIDEWAY ELECTRICAL DIRECTIVE ELECTRICAL GUIDEWAY LIGHTING PLANS	3-Apr-09
DD-L05-ED004	ED004	IN PROGRESS	GUIDEWAY ELECTRICAL DIRECTIVE ELECTRICAL GUIDEWAY LIGHTING DOUBLE TRACK	3-Apr-09
DD-L05-ED005	ED005	IN PROGRESS	GUIDEWAY ELECTRICAL DIRECTIVE ELECTRICAL GUIDEWAY LIGHTING SINGLE TRACK	3-Apr-09
DD-L05-ED006	ED006	NOT INCLUDED	ELECTRICAL DIRECTIVE PASSENGER STATION - CENTER PLATFORM PLATFORM LIGHTING	-
DD-L05-ED007	ED007	NOT INCLUDED	ELECTRICAL DIRECTIVE PASSENGER STATION - SIDE PLATFORM SIDE LIGHTING	-

RTD DIRECTIVE DRAWINGS				
File	**Drawing No.**	**Applicable**	**Drawing Title**	**Date**
			ELECTRICAL	
DD-L08-ED008	ED008	NOT INCLUDED	ELECTRICAL DIRECTIVE PASSENGER STATION ELECTRICAL, UPS, TCC ROOMS	-
			TRACTION POWER	
DD-N06-TD001	TD001		TRACTION POWER DIRECTIVE TYPICAL SUBSTATION RACEWAY LAYOUT	24-Jul-09
DD-N06-TD002	TD002		TRACTION POWER DIRECTIVE TYPICAL DC RACEWAYS ON AERIAL GUIDEWAY SECTIONS AND DETAILS	24-Jul-09
DD-N06-TD003	TD003		TRACTION POWER DIRECTIVE TYPICAL MANHOLE/PULLBOX DETAILS	24-Jul-09
DD-N06-TD004	TD004		TRACTION POWER DIRECTIVE TYPICAL UNDERGROUND DUCTBANK SECTIONS & DETAILS	24-Jul-09
DD-N06-TD005	TD005		TRACTION POWER DIRECTIVE SUBSTATION CABLE TRENCH DETAILS	24-Jul-09
DD-N06-TD006	TD006		TRACTION POWER DIRECTIVE SUBSTATION CABLE TRENCH DETAILS ALTERNATIVE	24-Jul-09
DD-N06-TD050	TD050		TRACTION POWER DIRECTIVE TYPICAL SUBSTATION GROUND GRID ARRANGEMENT	24-Jul-09
DD-N06-TD051	TD051		TRACTION POWER DIRECTIVE TYPICAL GAP BREAKER STATION GROUND GRID ARRANGEMENT	24-Jul-09
DD-N06-TD052	TD052		TRACTION POWER DIRECTIVE TYPICAL SUBSTATION GROUND GRID DETAILS	24-Jul-09
DD-N06-TD100	TD100		TRACTION POWER DIRECTIVE CONTACT RAIL INSTALLATION SPLICE JOINT ASSEMBLY	24-Jul-09
DD-N06-TD101	TD101		TRACTION POWER DIRECTIVE CONTACT RAIL INSTALLATION END-APPROACH ASSEMBLY	24-Jul-09
DD-N06-TD102	TD102		TRACTION POWER DIRECTIVE CONTACT RAIL INSTALLATION EXPANSION JOINT ASSEMBLY	24-Jul-09
DD-N06-TD103	TD103		TRACTION POWER DIRECTIVE CONTACT RAIL INSTALLATION ANCHOR ASSEMBLY DIRECT FIXATION TRACK	24-Jul-09
DD-N06-TD104	TD104		TRACTION POWER DIRECTIVE CONTACT RAIL INSTALLATION MOUNTING AND PEDESTAL DETAILS	24-Jul-09
DD-N06-TD105	TD105		TRACTION POWER DIRECTIVE CONTACT RAIL INSTALLATION INSULATOR BRACKET & ANCHOR BALLASTED TRACKS	24-Jul-09
DD-N06-TD106	TD106		TRACTION POWER DIRECTIVE CONTACT RAIL INSTALLATION COVERBOARD ASSEMBLY	24-Jul-09
DD-N06-TD107	TD107		TRACTION POWER DIRECTIVE CONTACT RAIL INSTALLATION COVERBOARD MOUNTING DETAILS	24-Jul-09
DD-N06-TD108	TD108		TRACTION POWER DIRECTIVE CONTACT RAIL INSTALLATION COVERBOARD ASSEMBLY AT EXPANSION JOINT	24-Jul-09
			TRAIN CONTROL	
DD-P04-ND001	ND001		TRAIN CONTROL DIRECTIVE MAINLINE SWITCH MACHINE LAYOUT DIRECT FIXATION	24-Jul-09
DD-P04-ND002	ND002		TRAIN CONTROL DIRECTIVE MAINLINE SWITCH MACHINE LAYOUT BALLASTED TRACK	24-Jul-09
DD-P04-ND003	ND003		TRAIN CONTROL DIRECTIVE YARD SWITCH MACHINE LAYOUT BALLASTED TRACK	24-Jul-09

Rev	By	Date	Description

Designed: N/A
Drawn: J Derosier
Checked: J Davis
Approved: A Borst
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

DIRECTIVE DRAWING SUMMARY
CITY AND COUNTY OF HONOLULU (RTD)

SHEET 2 OF 2

Contract No.: SV-245
CADD File: SC4-A06-GN009
Drawing No.: GN009 Rev.
Scale: N/A
Page No. 8 of 180

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STANDARD DETAILS SUMMARY–CITY AND COUNTY OF HONOLULU

SHEET NO.	APPLICABLE	TITLE	DATE
R–1		Pre–cast Concrete Curb	09/1984
R–2		Pre–cast Concrete Driveway Curb	09/1984
R–3		Pre–cast Concrete Drop Curb Block	09/1984
R–4		Integral Curb and Gutter, Integral Driveway Curb and Gutter	R01/1995
R–4A		Integral Curb and Gutter, Integral Driveway Curb and Gutter for R/W of 70' or More	R01/1995
R–5		Rolled Curb	09/1984
R–6		Rolled Curb Transition to Curbs and Catch Basins	09/1984
R–7		Driveway Apron with Rolled Curb	09/1984
R–8		Thru Gutter	09/1984
R–9		Concrete Pavement	09/1984
R–10		Concrete Pavement Joint Details	09/1984
R–11		Concrete Pavement Joint Details	09/1984
R–12		Street Survey Monument	09/1984
R–13		Street Survey Monument Castings	09/1984
R–14		Centerline Monument	09/1984
R–15		Temporary Wooden Barricade	09/1984
R–16		Sidewalk Reinforcement Details at Utility Boxes or Openings	09/1984
R–17		Tree Well with Concrete Cover	09/1984
R–18		3' or 4' Chain Link Fence	09/1984
R–19		6' Chain Link Fence	09/1984
R–20		Typical Single Gate	09/1984
R–21A		Typical Double Gate	R03/1991
R–22		Metal Guardrail Details	09/1984
R–23		Metal Guradrail Details	09/1984
R–24		Metal Guardrail Details	09/1984
R–25		Curb Ramp	R09/1992
R–25A		Curb Ramp	R04/2000
R–26		Private Driveway Ramp	09/1984
R–27		Full Width Sidewalk at Curb Return	09/1984
R–28		Sidewalk Details	09/1984
R–29		Driveway Apron	09/1984
R–29A		Driveway Apron	R04/2000
R–30		Driveway Layout	09/1984
R–31		Grade Adjustment Walls	09/1984
R–32		Street Cross–sections with Sidewalk	09/1984
R–33		Street Cross–sections without Sidewalk	09/1984
R–34		Road Pavement and Shoulders	09/1984
R–35		Typical Roadway Utility Location with Sidewalk	09/1984
R–36		Typical Roadway Utility Location without Sidewalk	09/1984
R–37		Residential Driveway without Curb and Gutter	09/1984
R–38		Driveway Layout	09/1984
R–39		Non–dedicable Streets	09/1984
R–40		Dry Well Cover	09/1984
R–41		Street Cross–sections with Curb and Gutter	09/1984
R–42		Street Cross–sections without Curb and Gutter	09/1984
R–43		Road Pavements and Shoulders	09/1984
R–44		Cul–de–sac	09/1984

SHEET NO.	APPLICABLE	TITLE	DATE
R–45		Tapered Road Intersection	09/1984
R–46		Typical Roadway Utility Location	09/1984
R–47		Space Allocation for Underground Utilities	09/1984
R–48		Residential Driveway without Curb and Gutter	09/1984
R–49		Driveway Layouts for Concrete Curb Streets	09/1984
R–50		Driveway Layouts for Non–Curb Streets	09/1984
R–51		Concrete Driveway with Existing Sidewalk	09/1984
R–52		Roadway Typical Sections	09/1984
R–53		Roadway Typical Sections	09/1984
R–54		Roadway Typical Sections	09/1984
R–55		Roadway Swales	09/1984
R–56		Sidewalk Details	09/1984
R–57		Cul–de–sac	09/1984
R–58		Space Allocation for Underground Utilities	09/1984
R–59		Space Allocation for Underground Utilities	09/1984
D–1		Type "A" Catch Basin	09/1984
D–2		Type "A" Catch Basin Reinforcement Details	09/1984
D–3		Type "E" Catch Basin	09/1984
D–4		Type "E" Catch Basin Reinforcement Details	09/1984
D–5		Type "B" Catch Basin	09/1984
D–6		Type "B" Catch Basin Reinforcement Details	09/1984
D–7		Type "F" Catch Basin	09/1984
D–8		Type "F" Catch Basin Reinforcement Details	09/1984
D–9		Type "C" Catch Basin	09/1984
D–10		Type "C" Catch Basin Reinforcement Details	09/1984
D–11		Type "D" Catch Basin	09/1984
D–12		Type "D" Catch Basin Reinforcement Details	09/1984
D–13		Catch Basin Details	09/1984
D–14		Details for Catch Basin with 5" Curb	09/1984
D–15		Deflector Inlet for Catch Basin	09/1984
D–16		Monolithic Construction of Catch Basin Top Slab and Sidewalk	09/1984
D–17		Shallow Drain Manhole for Sidewalk Area	09/1984
D–18		Shallow Drain Manhole for Pavement Area	09/1984
D–19		Pre–cast Top Slab for Shallow Drain Manhole	09/1984
D–20		Concrete Wall Drain Manhole	09/1984
D–21		Brick Wall Drain Manhole	09/1984
D–22		Pre–cast Concrete Drain Manhole	09/1984
D–23		Pre–cast Concrete Drain Manhole Details	09/1984
D–24		Pre–cast Concrete Drain Manhole Details	09/1984
D–25		Pre–cast Concrete Drain Manhole Details	09/1984
D–26		Channelizing Details for Drain Manhole	09/1984
D–27		Rungs for Catch Basins and Manholes	09/1984
D–28		Type "DA" Frame for Catch Basin and Manhole	09/1984
D–29		Type "DB" Frame for Catch Basin and Manhole	09/1984
D–30		Catch Basin and Manhole Cover	09/1984
D–31		Payment Trench Width and Repaving for Drain Pipes	09/1984
D–32		Sidewalk Culvert	09/1984
D–33		Driveway Drainage – Box Culvert	09/1984
D–34		Driveway Drainage – Pipe Culvert	09/1984

SHEET NO.	APPLICABLE	TITLE	DATE
D–35		Driveway Drainage – Swale	09/1984
D–36		Type G1 and Type G2 Drainage Inlets	09/1984
D–37		Type G3 Drainage Inlet	09/1984
D–38		Type G4 Drainage Inlet	09/1984
D–39		Standard Frame and Grate	09/1984
D–40		Local Depression without Curb and Gutter	09/1984
D–41		Junction Structure B	09/1984
D–42		Junction Structure C	09/1984
D–43		Junction Structure D	09/1984
D–44		Monolithic Catch Basin Connection for Pipes 12" to 72"	09/1984
D–45		Concrete Collar Details	09/1984
D–46		Single Box Culverts	09/1984
D–47		Double Box Culverts	09/1984
D–48		Triple Box Culverts	09/1984
D–49		Rectangular Transition	09/1984
D–50		Circular Transition	09/1984
D–51		Parapet Details for Box Culverts	09/1984
D–52		Support for Drain and Sewer Pipes Across Trenches	09/1984

Rev	By	Date	Description
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PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: J Derosier
Checked: L Karamatsu
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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STANDARD DETAILS SUMMARY
CITY AND COUNTY OF HONOLULU

SHEET 1 OF 2

Contract No.: SV–245
CADD File: SC4–A06–GN010
Drawing No: GN010 Rev.
Scale: N/A
Page No. 9 of 180

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STANDARD DETAILS SUMMARY–CITY AND COUNTY OF HONOLULU

SHEET NO.	APPLICABLE	TITLE	DATE
S–1		Rock Cradle for Sewer Pipe	09/1984
S–2		Concrete Cradle for Vitrified Clay Pipe	09/1984
S–3		Method of Laying Pipe	09/1984
S–4		Pre–cast Concrete Pipe Block	09/1984
S–5		Concrete Jacket, Reinforced Concrete Cradle	09/1984
S–6		Laterals	09/1984
S–7		Advance Riser Connection	09/1984
S–8		Method of Backfill	09/1984
S–9		Chimney	09/1984
S–10		Index to Sewer Manhole Details	09/1984
S–11		Manhole Notes	09/1984
S–12		Manhole Notes	09/1984
S–13		Pre–cast Concrete Plain Manhole	09/1984
S–14		Pre–cast Concrete Plain Manhole – Section and Alternate Base	09/1984
S–15		Pre–cast Concrete Shallow Drop Manhole	09/1984
S–16		Pre–cast Concrete Shallow Drop Manhole – Butt Joint Details	09/1984
S–17		Pre–cast Concrete Drop Manhole	09/1984
S–18		Pre–cast Concrete Drop Manhole – Sections	09/1984
S–19		Pre–cast Concrete Plain Manhole for 27" to 48" R.C. Pipe	09/1984
S–20		Pre–cast Concrete Plain Manhole for 27" to 48" R.C. Pipe – Section	09/1984
S–21		Pre–cast Concrete Manhole Wall	09/1984
S–22		Pre–cast Concrete Eccentric Manhole Cone	09/1984
S–23		Pre–cast Concrete Manhole Wall to Brick Wall Adapter Ring	09/1984
S–24		Pre–cast Concrete Manhole Wall Joints	09/1984
S–25		Pre–cast Concrete Manhole – Detail at Top Rung	09/1984
S–26		Brick Manhole	09/1984
S–27		Plain Manhole	09/1984
S–28		Shallow Drop Manhole	09/1984
S–29		Drop Manhole	09/1984
S–30		Drop Manhole – Sections	09/1984
S–31		Manhole Cover – Type SA	09/1984
S–32		Manhole Frame – Type SA	09/1984
S–33		Manhole Cover – Type SB, Top View	09/1984
S–34		Manhole Cover – Type SB, Bottom View	09/1984
S–35		Manhole Frame – Type SB	09/1984
S–36		Modified Type SB Pressure Manhole Frame and Cover	09/1984
S–37		Pressure Manhole Cover – Type SC	09/1984
S–38		Pressure Manhole Cover – Type SC	09/1984
S–39		Pressure Manhole Frame and Cover – Type SC	09/1984
S–40		Manhole Frame – Type SD	09/1984
S–41		Drop Manhole Chimney Casting	09/1984
S–42		Manhole Rung Details – Type SA	09/1984
S–43		Manhole Rung Details – Type SC	09/1984
S–44		Manhole Rung Details – Type SD	09/1984
S–45		Manhole Rung Details – Type SE	09/1984
S–46		Manhole Rung Details – Type SF	09/1984
S–47		PVC Pipe – Bedding Requirements	09/1984
S–48		PVC Pipe – Resilient Manhole Connection	09/1984
P–1		Backflow Preventer	09/1984
P–2		Fence and Gate Details	09/1984
P–3		Oil Seals and Related Piping	09/1984
P–4		Oil Seals and Related Piping	09/1984
P–5		Oil Seals and Related Piping	09/1984
P–6		Removable Post and Chain Details	09/1984
P–7		Removable Railing Details	09/1984
P–8		Typical Wall Sleeve	09/1984
P–9		Sprinkler Valve Control	09/1984
P–10		Motor Shaft and Coupling	09/1984
P–11		Typical Pump Motor Drive Shaft Guard	09/1984
P–12		Typical Pump Coupling Guard	09/1984
P–13		Typical Hoizontal Shaft Guard No. 1	09/1984
P–14		Typical Hoizontal Shaft Guard No. 2	09/1984
P–15		Safety Guard General Notes	09/1984
P–16		1 1/2" Stand Pipe Detail	09/1984
T–1		Street Name and Stop Sign Details	09/1984
T–2		Height and Lateral Location of Sign	09/1984
T–3		Typical Locations for Stop Signs	09/1984
T–4		Typical Detail for Crosswalk and Stop Lines	09/1984
T–5		Typical Sign Installations in Cul–de–sacs	09/1984
T–6		Road Marker	09/1984
T–7		Raised Pavement Markers	09/1984
T–8		Typical Installation of Raised Pavement Markers	09/1984
T–9		Typical Intersection Detail for Striping	09/1984
T–10		Striping Details	09/1984
T–11		Street Name and Stop Sign Details	09/1984
T–12		Parking Design Standard, One–Way Traffic	09/1984
T–13		Parking Design Standard, Two–Way Traffic	09/1984
T–14		Standard Street Name Sign	09/1984

SHEET NO.	APPLICABLE	TITLE	DATE

Rev	By	Date	Description
.			

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: J Derosier
Checked: L Karamatsu
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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STANDARD DETAILS SUMMARY
CITY AND COUNTY OF HONOLULU

SHEET 2 OF 2

Contract No.: SV–245
CADD File: SC4–A06–GN011
Drawing No.: GN011 Rev.
Scale: N/A
Page No. 10 of 180

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STANDARD PLANS SUMMARY—STATE OF HAWAII DEPARTMENT OF TRANSPORTATION (HDOT)

STANDARD PLAN NO.	APPLICABLE	TITLE	DATE
B–01		Notes and Miscellaneous Details	R05/31/07
B–03		Backfill Details at Earth Retaining Structures	R05/31/07
B–12		Prestressed Concrete Piles and Compression Splice Can Details	R05/31/07
B–12A		Prestressed Concrete Piles, Pile and Compression Splice Can Details and Pile Notes	R05/31/07
B–12B		Pile Interaction Diagram	R05/31/07
B–13		Prestressed Concrete Pile Build–Up Details	R05/31/07
D–01		Cattle Gate	R05/31/07
D–02		Chain Link Fence with Toprail	R05/31/07
D–03		Chain Link Fence without Toprail	R05/31/07
D–04		Wire Fence with Metal Posts	R05/31/07
D–05		Typical Details of Curbs and/or Gutters	R05/31/07
D–06		Typical Detail of Reinforced Concrete Drop Driveway	R05/31/07
D–07		Centerline and Reference Survey Monument	R05/31/07
D–08		Street Survey Monument	R05/31/07
D–15		Concrete Sidewalk	R05/31/07
D–16		P.C.C. Bus Pad	R05/31/07
D–17		P.C.C. Bus Pad	R05/31/07
D–18		P.C.C. Pavement Layout	R05/31/07
D–19		P.C.C. Pavement w/ Permeable Base Joint Details	R05/31/07
D–20		P.C.C. Pavement w/ Permeable Base Joint Details	R05/31/07
D–21		P.C.C. Longitudinal Joint Details	R05/31/07
D–22		P.C.C. Connection to Curbs and Gutters	R05/31/07
D–23		Joints	R05/31/07
H–01A		Type A Catch Basin	R05/31/07
H–01B		Type B Catch Basin	R05/31/07
H–01C		Type C Catch Basin	R05/31/07
H–01D		Type D Catch Basin	R05/31/07
H–01E		Catch Basin Sections	R05/31/07
H–02A		Type A1 Catch Basin	R05/31/07
H–02B		Type B1 Catch Basin	R05/31/07
H–02C		Type C1 Catch Basin	R05/31/07
H–02D		Type D1 Catch Basin	R05/31/07
H–02E		Catch Basin Sections	R05/31/07
H–03		Type A, B, and C Storm Drain Manhole	R05/31/07
H–04		Type D Storm Drain Manhole	R05/31/07
H–05		Typical Reinforcing Details for Drainage Structures	R05/31/07
H–06		Typical Reinforcing Details for Drainage Structures	R05/31/07
H–07		Catch Basin and Manhole Castings	R05/31/07
H–08		Type 1A–9 and 1A–9P Grated Drop Inlet	R05/31/07
H–09		Type 2A–9 and 2A–9P Grated Drop Inlet	R05/31/07
H–10		Type A–9 or A–9P Steel Frames	R05/31/07
H–11		Type A–9 and A–9P Steel Grates	R05/31/07
H–12		Type 61614P and 1211214P Grated Drop Inlet	R05/31/07
H–13		Type 61616P and 1211216P Grated Drop Inlet	R05/31/07
H–14		Type 61214P Grated Drop Inlet	R05/31/07
H–15		Type 1211214, 1211214P and 1211216, 1211216P Steel Frame and Grates	R05/31/07

STANDARD PLAN NO.	APPLICABLE	TITLE	DATE
H–16		Type 61614, 61614P, 61616, 61616P Steel Frame and Grates	R05/31/07
H–17		Type 61214 Steel Frames and Grates	R05/31/07
H–18		Type 61214P Steel Grates	R05/31/07
H–19		Type 61614B Steel Frame and Grates	R05/31/07
H–20		Cement Rubble Masonry Structures	R05/31/07
H–21		Concrete and Cement Rubble Masonry Structures	R05/31/07
H–22		Inlet/Outlet Structure	R05/31/07
H–23		Inlet/Outlet Structure	R05/31/07
H–24		Flared End Section for Culverts	R05/31/07
H–25		Flared End Section for Culverts	R05/31/07
H–26		Concrete Spillway Inlet	R05/31/07
H–27		Cap Coupling Details Standard Joint	R05/31/07
H–28		Reinforced Concrete Collar & Jacket	R05/31/07
H–29		Underdrain Cleanout Steel Frame and Cover	R05/31/07
H–30		Underdrain Connection to Drainage Structure	R05/31/07
L–01		Tree Planting	R08/16/06
L–02		Tree Planting	R08/16/06
L–03		Tree Transplanting	R08/16/06
L–04		Palm Planting	R08/16/06
L–05		Shrub Planting	R08/16/06
L–06		Landscape Details	R08/16/06
L–07		Landscape Details	R08/16/06
L–08		Landscape Details	R08/16/06
L–09		Landscape Details	R08/16/06
L–10		Landscape Details	R08/16/06
L–11		Planting Notes	R08/16/06
L–12		Irrigation Details	R08/16/06
L–13		Irrigation Details	R08/16/06
L–14		Irrigation Details	R08/16/06
L–15		Irrigation Details	R08/16/06
L–16		Irrigation Details	R08/16/06
L–17		Irrigation Details	R08/16/06
L–18		Irrigation Details	R08/16/06
L–19		Irrigation Details	R08/16/06
L–20		Irrigation Details	R08/16/06
L–21		Irrigation Details	R08/16/06
L–22		Irrigation Details	R08/16/06
L–23		Irrigation Details	R08/16/06
L–24		Irrigation Notes	R08/16/06
TE–01		Sign Height and Location	07/11/08
TE–01A		Sign Installation	07/11/08
TE–02A		Galvanized Flanged Channel Sign Post Mounting	R05/31/07
TE–02B		Galvanized Flanged Channel Sign Post Mounting	R05/31/07
TE–02C		Galvanized Flanged Channel Sign Post Mounting	R05/31/07
TE–03A		Galvanized Square Tube Sign Post Mounting	R05/31/07
TE–03B		Galvanized Square Tube Sign Post Mounting	R05/31/07
TE–04		Regulatory Signs	07/11/08
TE–05		Warning Signs	07/11/08
TE–06		Miscellaneous Signs	07/11/08

STANDARD PLAN NO.	APPLICABLE	TITLE	DATE
TE–07		Construction Signs	07/11/08
TE–08		Miscellaneous Intersection Signs	07/11/08
TE–09		Bike Route Sign & Supplementary Plates	07/11/08
TE–10		Interstate Route Marker	07/11/08
TE–11		State Route Marker and Auxiliary Markers	07/11/08
TE–12		State Route Marker and Border Detail for Guide Signs	07/11/08
TE–12A		Route Sign Assemblies	07/11/08
TE–13		Street Name Sign on Mast Arm	07/11/08
TE–14		Miscellaneous Reflector Markers	07/11/08
TE–15		Object Markers	07/11/08
TE–16		Mile Posts	07/11/08
TE–17A		Cantilever Overhead Sign Elevation & Details	R05/31/07
TE–17B		Cantilever Sign Frame Detail and Sections	R05/31/07
TE–17C		Cantilever Sign Frame Detail	R05/31/07
TE–17D		Cantilever Sign Frame Sections	R05/31/07
TE–17E		Cantilever Sign Frame Details	R05/31/07
TE–18A		Two Post Overhead Sign Frame Elevations	R05/31/07
TE–18B		Two Post Sign Framing Plan Section	R05/31/07
TE–18C		Two Post Sign Framing Sections and Details	R05/31/07
TE–18D		Two Post Sign Frame Details	R05/31/07
TE–18E		Two Post Sign Frame Details	R05/31/07
TE–19A		Overhead Sign Framing Schedule	R05/31/07
TE–19B		Sign Post Drilled Shaft Foundation	R05/31/07
TE–19C		Spread Footing	R05/31/07
TE–19D		Sign Frame Foundation Schedule	R05/31/07
TE–19D.1		Sign Frame Foundation Schedule	R05/31/07
TE–19D.2		Sign Frame Foundation Schedule	R05/31/07
TE–19D.3		Sign Frame Foundation Schedule	R05/31/07
TE–19D.4		Sign Frame Foundation Schedule	R05/31/07
TE–19D.5		Sign Frame Foundation Schedule	R05/31/07
TE–19E		Anchorage Details	R05/31/07
TE–19F		Anchorage Details	R05/31/07
TE–19G		Miscellaneous Sign Frame Details	R05/31/07
TE–19H		Luminaire Walkway Support	R05/31/07
TE–19J		Fixed Message Luminaire Support	R05/31/07
TE–19K		Miscellaneous Sign Details	R05/31/07
TE–19L		Miscellaneous Sign Details	R05/31/07
TE–19M		Miscellaneous Sign Frame Details	R05/31/07
TE–20		Supports for Ground Mounted Guide Sign	R05/31/07
TE–20A		Supports for Ground Mounted Guide Sign	R05/31/07
TE–20B		Supports for Ground Mounted Guide Sign	R05/31/07
TE–20C		Supports for Ground Mounted Guide Sign	R05/31/07
TE–21A		Sign Breakaway Mounts	R05/31/07
TE–21B		Sign Breakaway Mounts	R05/31/07
TE–22		Laminated Aluminum Sign Panels (Overhead)	07/11/08
TE–23		Laminated Aluminum Sign Panels (Ground Mounted)	R05/31/07
TE–24		Solid Aluminum Extruded Sign Panel and Accessory Details	R05/31/07
TE–25		Guide Signs Luminaire Mountings	R05/31/07
TE–26		Raised Pavement Markers and Striping	07/11/08

Rev	By	Date	Description
.			

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: J Derosier
Checked: L Karamatsu
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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STANDARD PLANS SUMMARY
STATE OF HAWAII (HDOT)

SHEET 1 OF 2

Contract No.: SV–245
CADD File: SC4–A06–GN012
Drawing No.: GN012 Rev.
Scale: N/A
Page No. 11 of 180

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STANDARD PLANS SUMMARY—STATE OF HAWAII DEPARTMENT OF TRANSPORTATION (HDOT)

STANDARD PLAN NO.	APPLICABLE	TITLE	DATE
TE–27		Raised Pavement Markers and Striping	07/11/08
TE–28		Entrance and Exit Pavement Markings	07/11/08
TE–28A		Miscllaneous Pavement Markings	07/11/08
TE–29		Pavement Arrows and Symbols	07/11/08
TE–30		Pavement Alphabets, Numbers & Symbols	07/11/08
TE–31		Pavement Alphabets, Numbers & Symbols	07/11/08
TE–32		Type I & II Traffic Signal System Miscellaneous Details	R05/31/07
TE–33		Type II Traffic Signal System	08/16/06
TE–33A.1		Type II Traffic Signal Standard	R05/31/07
TE–33A.2		Type II Traffic Signal Standard	R05/31/07
TE–34		Loop Detector Details	07/11/08
TE–35		Loop Detectors & Duct Details	07/11/08
TE–36		Traffic Signal Details	07/11/08
TE–37		Pullbox & Cover Details	07/11/08
TE–37A		Type "A" Traffic Pullbox	R05/31/07
TE–37B		Type "A" Traffic Pullbox Reinforcing	R05/31/07
TE–37C		Type "B" Traffic Pullbox	R05/31/07
TE–37D		Type "B" Traffic Pullbox Reinforcing	R05/31/07
TE–37E		Type "B" Traffic Pullbox Foundation	R05/31/07
TE–37F		Type "C" Traffic Pullbox	R05/31/07
TE–37G		Type "C" Traffic Pullbox Reinforcing	R05/31/07
TE–37H		Type "C" Traffic Pullbox Foundation	R05/31/07
TE–37J		Traffic Pullbox Cover & Details	R05/31/07
TE–38		Type III Traffic Signal Standard	R05/31/07
TE–38A.1		Type III Traffic Signal Standard	R05/31/07
TE–38A.2		Type III Traffic Signal Standard	R05/31/07
TE–39		Metal Guardrail Connection to Concrete Barrier	07/11/08
TE–40		Concrete Barrier Transition	R05/31/07
TE–40A		Concrete Barrier Transition Sections	R05/31/07
TE–41		Guardrail Type 4 (Rigid Barrier)	R05/31/07
TE–42		Portable Concrete Barrier	R05/31/07
TE–43		Portable Concrete Barrier	R05/31/07
TE–44		Guardrail Type 4 Miscellaneous Details	07/11/08
TE–45		Barricades	07/11/08
TE–46		Delineation & Pavement Markings at Narrow Bridges	07/11/08
TE–47		Highway Light Standard	R05/31/07

STANDARD PLAN NO.	APPLICABLE	TITLE	DATE

STANDARD PLAN NO.	APPLICABLE	TITLE	DATE

Rev	By	Date	Description
.			

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: J Derosier
Checked: L Karamatsu
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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STANDARD PLANS SUMMARY
STATE OF HAWAII (HDOT)

SHEET 2 OF 2

Contract No.: SV–245
CADD File: SC4–A06–GN013
Drawing No: GN013 Rev.
Scale: N/A
Page No. 12 of 180

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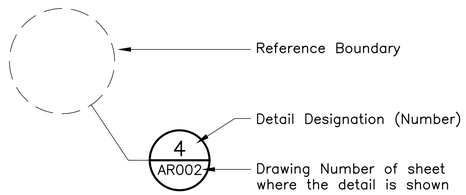
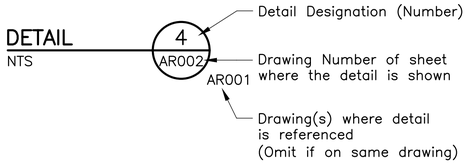
GENERAL NOTES

1. "EB Track" denotes the centerline of the Eastbound Track. "WB Track" denotes centerline of the Westbound Track.
2. Origin of Coordinates: Hawaii State Plane Coordinate Grid System, Zone III with the North American Datum of 83 High Accuracy Reference Network (NAD83 HARN).
3. Elevations shown on these plans are reference to Mean Sea Level (MSL).
4. Underground facilities, poles, structures, and utilities have been plotted from available surveys and records. Their locations must be considered approximate only. There may be others, the existence of which is at present unknown. Verification of all the locations, shown or not shown, will be the responsibility of the contractor.
5. The existing conditions shown hereon are based on LiDAR data collected in September and October of 2007, supplemental ground surveys were performed between September of 2007 and December of 2008, and record information from various design projects either constructed, under construction or proposed. The selected Designer is responsible for verifying existing conditions prior to supplying advanced design documents to the RTD.
6. Contact the Hawaii Department of Transportation (HDOT) and/or the City and County of Honolulu for additional plan sheet details not included in the Standard Details Summary and Standard Plans Summary plan sheets.
7. For Survey Control Data see RTD Standard Drawings.

SYMBOLS

DETAILS





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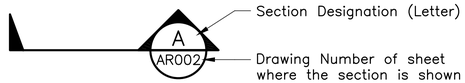
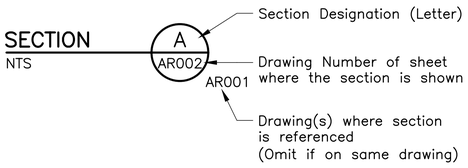
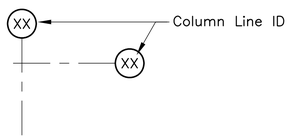




COLUMN LINE GRID INDICATOR



GENERAL SYMBOLS

&	And
@	At
#	Number
ø	Diameter
%	Percent
=	Equal to
>	Greater Than
<	Less Than
≥	Greater Than or Equal To
≤	Less Than or Equal To

CIVIL SYMBOLS

△	Point of Intersection
○	PVC
	Station Equation
XX–X	Roadway Curve Number
—— CUT ——	Limit of Cut Slope (Top of Slope)
—— FILL ——	Limit of Fill Slope (Toe of Slope)

HATCH

Station Platform

SPECIAL TERMS

Makai	Ocean
Mauka	Mountain

231° 41' 16" South Azimuth

ABBREVIATIONS

Aggr	Aggregate
AHD, AH	Ahead
Align	Alignment
Approx	Approximate
℄	Baseline
BK	Back
BT	Back Tangent
Bldg	Building
BVC	Begin Vertical Curve
BVCE	Begin Vertical Curve Elevation
BVCS	Begin Vertical Curve Station
℄	Centerline
CB	Catch Basin
CCTV	Closed Circuit Television Camera
Comm	Communications
Conc	Concrete
Const	Construction
CS	Curve to Spiral
DF	Direct Fixation
DI	Drainage Inlet
Øa	Diameter
	Delta
DMH	Drainage Manhole
DS	Downspout
Dwg	Drawing
E	East
Ea	Actual Superelevation
Eu	Unbalanced Elevation
EB	Eastbound
EG	Existing Ground
El	Elevation
Elev	Elevation
EVC	End Vertical Curve
EVCE	End Vertical Curve Elevation
EVCS	End Vertical Curve Station
Exist	Existing
FA	Fire Alarm
FG	Finish Grade
Fin	Finish, Finished
FOC	Face of Curb
ft	Foot, Feet
GB	Grade Break
GBS	Gap Breaker Station
Gnd	Ground
H, Horiz	Horizontal
HWY	Highway
Jt(s)	Joint(s)
L	Length
Lc	Length of Curve
LH, L.H.	Left Hand
LiDAR	Light Detection and Ranging
Ls	Length of Spiral
LT	Left
LVC	Length of Vertical Curve
Max	Maximum
Min	Minimum
MHN	Manhole, Negative
MHP	Manhole, Positive
MPH	Miles Per Hour
N	North
N/A	Not Applicable
NB	Northbound
NIC	Not in Contract
N.I.C.	Not in Contract
No.	Number
OD	Outside Diameter
PC	Point of Curve
PI	Point of Intersection
PITO	Point of Intersection of Turnout
POB	Point of Beginning
POC	Point on Curve
POE	Point of Ending
POT	Point on Tangent
POVC	Point on Vertical Curve
POVT	Point on Vertical Tangent
PS	Point of Switch
PSI	Pounds Per Square Inch
PT	Point of Tangent
PVC	Point of Vertical Curvature
PVI	Point of Vertical Intersection
PVT	Point of Vertical Tangency
R	Radius
Reinf	Reinforce, Reinforcing
RH, R.H.	Right Hand
Rm	Room
ROW	Right–of–Way
RPM	Revolutions Per Minute
RT	Right
S	South
SB	Southbound
SC	Spiral to Curve
SDMH	Storm Drain Manhole
Shldr	Shoulder
Sht	Sheet
Sig	Signal
Sq	Square
St	Street
ST	Spiral to Tangent
Sta	Station
T	Tangent Distance
T&B	Top & Bottom
T.O.	Turnout
TOR	Top of Rail
TPSS	Traction Power Substation
TS	Tangent to Spiral
Typ	Typical
UG	Underground
V	Speed
Vert	Vertical
W	West
WB	Westbound
w/	With

Rev	By	Date	Description
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PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: T Cochran
Checked: E Liberman
Approved: A Borst
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

GENERAL CIVIL NOTES, SYMBOLS, AND ABBREVIATIONS

Contract No.: SV–245
CADD File: SC4–B01–CG001
Drawing No.: CG001
Rev.:
Scale: N/A
Page No.: 13 of 180

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ROADWAY CONSTRUCTION NOTES:

1. Construct Concrete Curb, Type 2A, Per HDOT Std Plan No. D–05.
2. Construct Concrete Curb, Type 2D, Per HDOT Std Plan No. D–05.
3. Construct Concrete Curb and Gutter, Type 2DG, Per HDOT Std Plan No. D–05.
4. Construct Concrete Sidewalk, Per HDOT Std Plan No. D–15.
5. Construct Reinforced Concrete Drop Driveway, Per HDOT Std Plan No. D–06.
6. Construct Concrete Curb Ramp.
7. Install Chain Link Fence with Toprail, 6', Per HDOT Std Plan No. D–02.
8. Install Chain Link Fence without Toprail, 6', Per HDOT Std Plan No. D–03.
9. Install Double Swing Chain Link Drive Gate, 20', Per HDOT Std Plan No. D–02 and D–03.
10. Construct Concrete Barrier Rail, Type 4A, Per HDOT Std Plan No. TE–41.
11. Construct Concrete Half Barrier Rail.
12. Install Guardrail.
13. Construct Concrete Retaining Wall.
14. Construct PCC Bus Pad, Per HDOT Std Plan No. D–16.
15. Construct Plantmix Bituminous Surface Overlay.
16. Construct Plantmix Bituminous Pavement.
17. Construct Concrete Median Island Paving.
18. Construct Double Swing Drive Gate.
19. Construct Reinforced Concrete Driveway.
20. Place Aggregate Base Surface.
21. Construct Concrete Barrier Rail, Type 4B, Per HDOT Std Plan No. TE–41.
22. Construct Landscaped Median Island

ROADWAY CONSTRUCTION LEGEND:

- Proposed full depth pavement area.
- Proposed concrete pavement.
- Proposed pavement mill & overlay area.
- Proposed sidewalk, curb & gutter, curb, and median island paving area.
- Proposed landscaped median island area.
- Proposed gravel pavement.
- Proposed guideway column.
- Proposed guideway cantilever bent column.
- Proposed guideway straddle bent column.

GENERAL ROADWAY CONSTRUCTION NOTES:

1. See survey control plan sheets for references to horizontal and vertical control datums.
2. See structural plan and profile sheets for proposed guideway column details.
3. See landscaping plan sheets for proposed landscaping details.
4. See ROW plan sheets for proposed ROW details.
5. See utility plan sheets for proposed modifications and/or improvements to existing above and below ground utility systems.
6. See drainage plans sheets for proposed modifications and/or improvements to existing storm drainage facilities and piping.
7. See traffic signal plan sheets for proposed modifications and/or improvements to existing traffic signal systems.
8. See systems site plan sheets for proposed TPSS and GBS details.
9. See track alignment plan and profile for proposed track alignment details.
10. See station plan sheets for proposed station details.

Rev	By	Date	Description
.			

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: B Wardell
Drawn: J Derosier
Checked: E Liberman
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

ROADWAY CONSTRUCTION NOTES AND LEGEND

Contract No.: SV–245
CADD File: SC4–B01–CG002
Drawing No.: CG002 Rev.
Scale: NTS
Page No. 14 of 180

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NOTES:

1. ROW acquisition may be in the form of an aerial easement; an easement allowing joint use; subdivision of property with transfer of title; transfer of title for the entire parcel; or some other form to be documented by Land Court registration.
2. Construction easements will be defined during the final design phase and are not reflected on plans.
3. See Dwg No. CG001 for general civil notes, legend and abbreviations.

LEGEND

- Right-of-Way (ROW) / Parcel Need
- Access Permitted
- No Vehicle Access Permitted
- No Access Permitted
- Proposed Access Permitted
- Proposed No Vehicle Access Permitted
- Proposed No Access Permitted
- ROW Line
- Property Line
- Easement Line
- C/L Easement Line

Tax Map Key Number	Parcel Acquisitions	House Number	Street Name	Land Use
9-7-024:034	Partial	1000	Kamehameha Highway	Commercial

KEY PLAN

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: L Karamatsu
Drawn: L Karamatsu
Checked: K Wong
Approved: A Borst
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

EXISTING RIGHT-OF-WAY & PROPOSED ACQUISITION TABULATIONS

SHEET 1 OF 6

Contract No.: SV-245
CADD File: SC4-B04-RW001
Drawing No.: RW001 Rev.:
Scale: 1"=40'
Page No. 15 of 180

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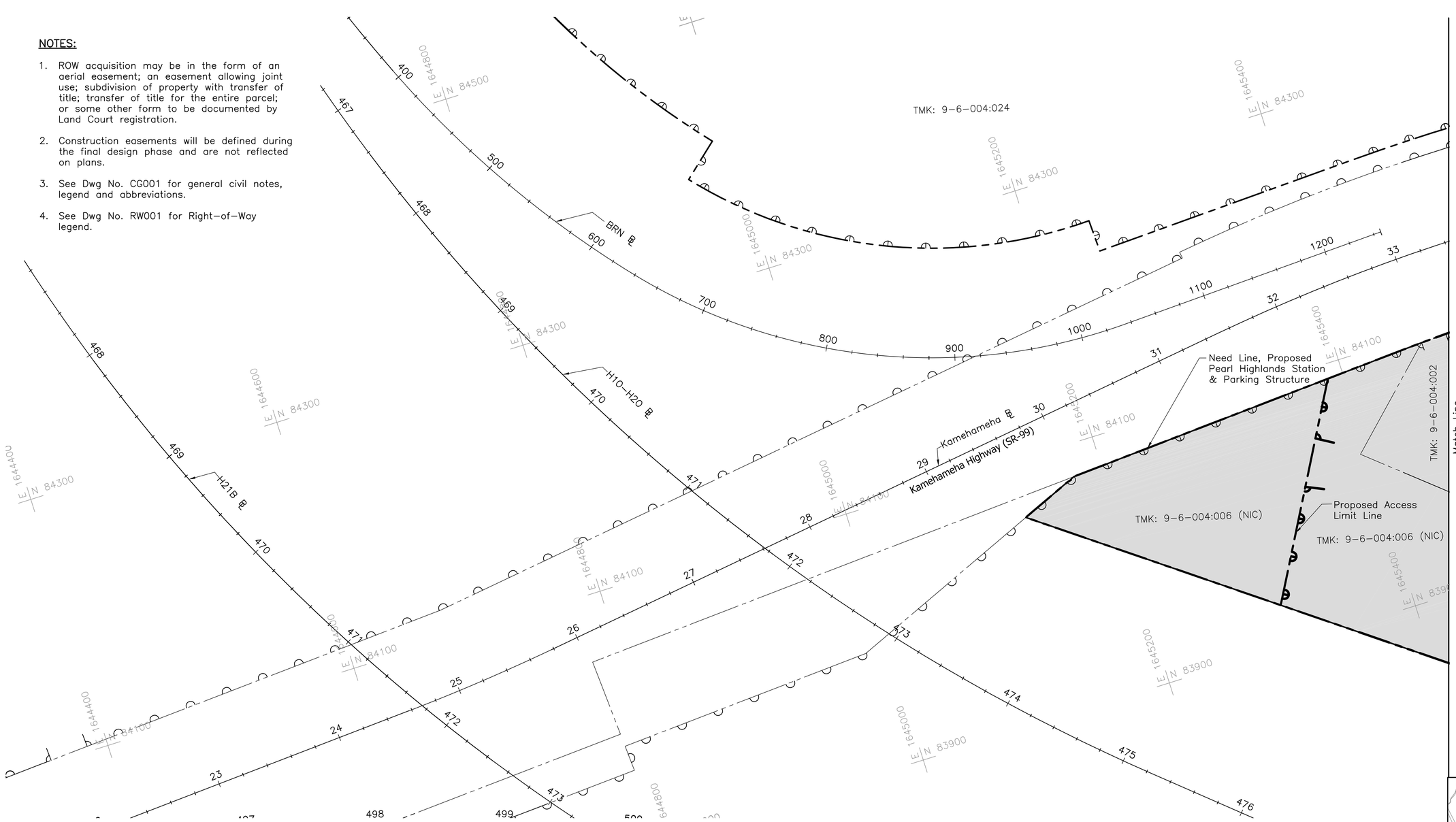
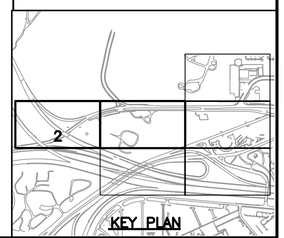
NOTES:

1. ROW acquisition may be in the form of an aerial easement; an easement allowing joint use; subdivision of property with transfer of title; transfer of title for the entire parcel; or some other form to be documented by Land Court registration.
2. Construction easements will be defined during the final design phase and are not reflected on plans.
3. See Dwg No. CG001 for general civil notes, legend and abbreviations.
4. See Dwg No. RW001 for Right-of-Way legend.



Tax Map Key Number	Parcel Acquisitions	House Number	Street Name	Land Use
9-6-004:002	Full	96-93, 93-93B	Kamehameha Hwy	Residential
9-6-004:006	Full	–	–	Commercial



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Drawn: L Karamatsu
Checked: K Wong
Approved: A Borst
Date: 09-11-09

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PEARL HIGHLANDS STATION

EXISTING RIGHT-OF-WAY & PROPOSED ACQUISITION TABULATIONS

SHEET 2 OF 6

Contract No.: SV-245
CADD File: SC4-B04-RW002
Drawing No.: RW002 Rev.:
Scale: 1"=40'
Page No.: 16 of 180

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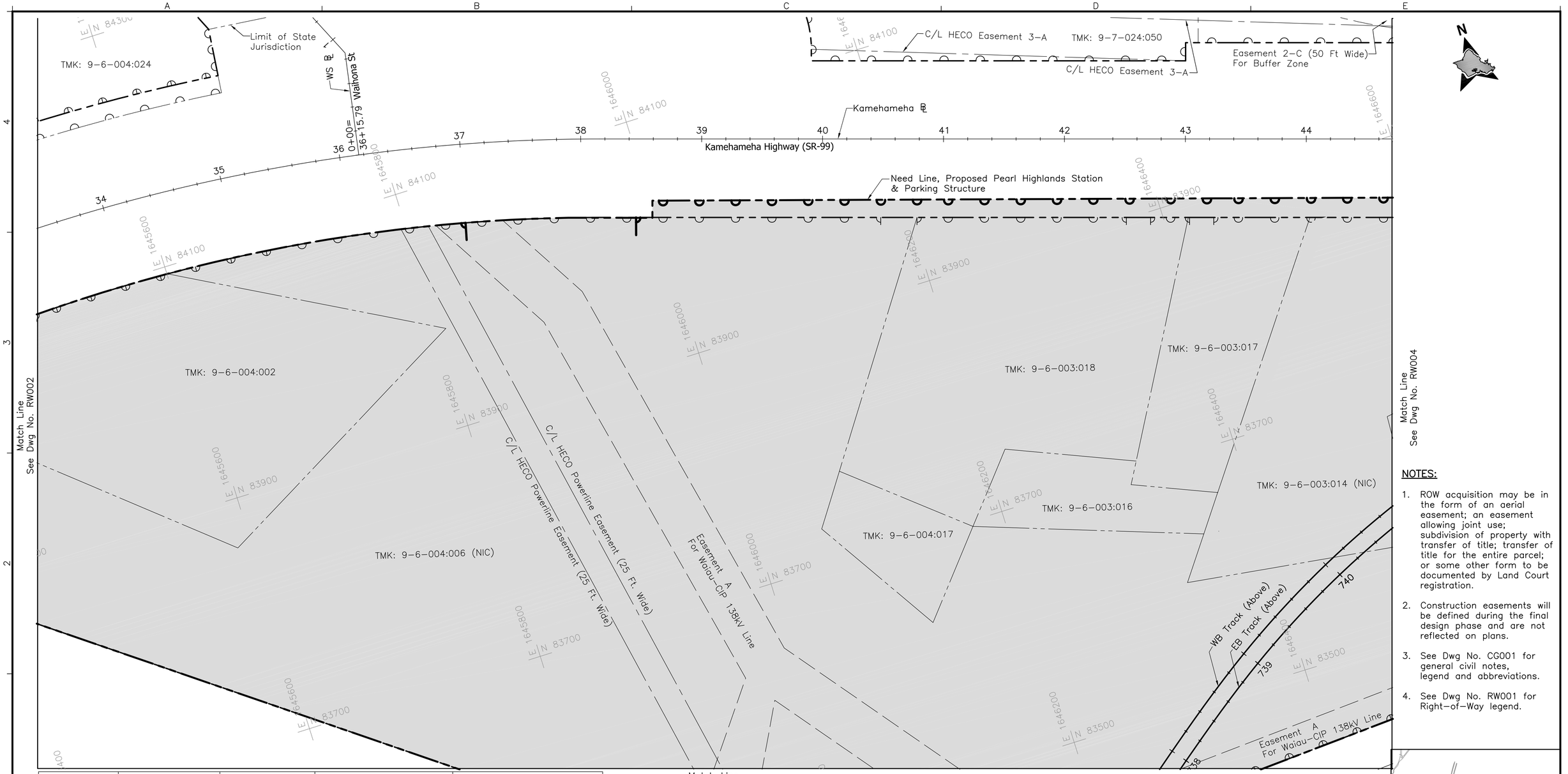


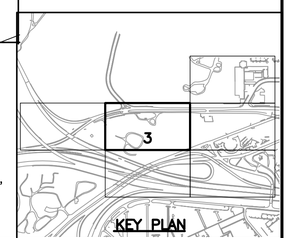
Tax Map Key Number	Parcel Acquisitions	House Number	Street Name	Land Use
9-6-003:014	Full	96-157, 96-159	Kamehameha Hwy	Residential
9-6-003:016	Full	96-149A	Kamehameha Hwy	Residential
9-6-003:017	Full	96-149, 96-151	Kamehameha Hwy	Residential
9-6-003:018	Full	96-135, 96-137 96-137A, 96-141 96-145	Kamehameha Hwy	Residential

Tax Map Key Number	Parcel Acquisitions	House Number	Street Name	Land Use
9-6-004:002	Full	96-93, 96-93B	Kamehameha Hwy	Residential
9-6-004:006	Full	–	–	Commercial
9-6-004:017	Full	–	–	Residential

40' 0 40'

NOTES:

1. ROW acquisition may be in the form of an aerial easement; an easement allowing joint use; subdivision of property with transfer of title; transfer of title for the entire parcel; or some other form to be documented by Land Court registration.
2. Construction easements will be defined during the final design phase and are not reflected on plans.
3. See Dwg No. CG001 for general civil notes, legend and abbreviations.
4. See Dwg No. RW001 for Right-of-Way legend.



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: L Karamatsu
Drawn: L Karamatsu
Checked: K Wong
Approved: A Borst
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813
Subconsultant:
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PEARL HIGHLANDS STATION

EXISTING RIGHT-OF-WAY & PROPOSED ACQUISITION TABULATIONS

SHEET 3 OF 6

Contract No.: SV-245
CADD File: SC4-B04-RW003
Drawing No.: RW003 Rev.
Scale: 1"=40'
Page No. 17 of 180

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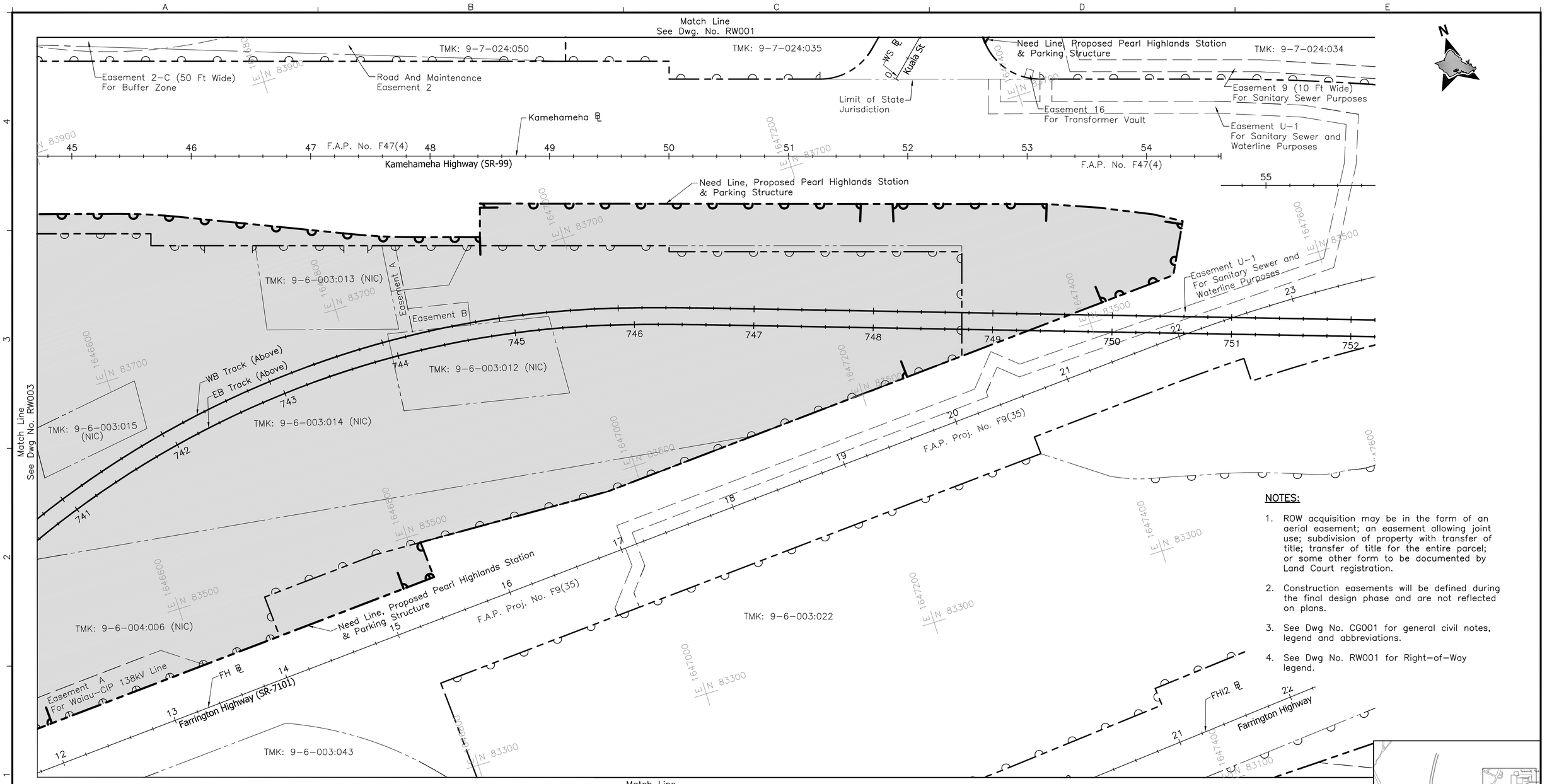

Tax Map Key Number	Parcel Acquisitions	House Number	Street Name	Land Use
9-6-003:012	Full	96-171	Kamehameha Hwy	Church
9-6-003:013	Full	96-165, 96-169	Kamehameha Hwy	Residential
9-6-003:014	Full	96-157, 96-159	Kamehameha Hwy	Residential

Tax Map Key Number	Parcel Acquisitions	House Number	Street Name	Land Use
9-6-003:015	Full	–	–	Residential
9-6-004:006	Full	–	–	Commercial
9-7-024:034	Partial	1000	Kamehameha Hwy	Commercial

40' 0 40'

NOTES:

1. ROW acquisition may be in the form of an aerial easement; an easement allowing joint use; subdivision of property with transfer of title; transfer of title for the entire parcel; or some other form to be documented by Land Court registration.
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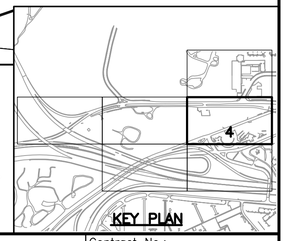
4. See Dwg No. RW001 for Right-of-Way legend.



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: L Karamatsu
Drawn: L Karamatsu
Checked: K Wong
Approved: A Borst
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

EXISTING RIGHT-OF-WAY & PROPOSED ACQUISITION TABULATIONS

SHEET 4 OF 6

Contract No.: SV-245
CADD File: SC4-B04-RW004
Drawing No: RW004 Rev.
Scale: 1"=40'
Page No. 18 of 180

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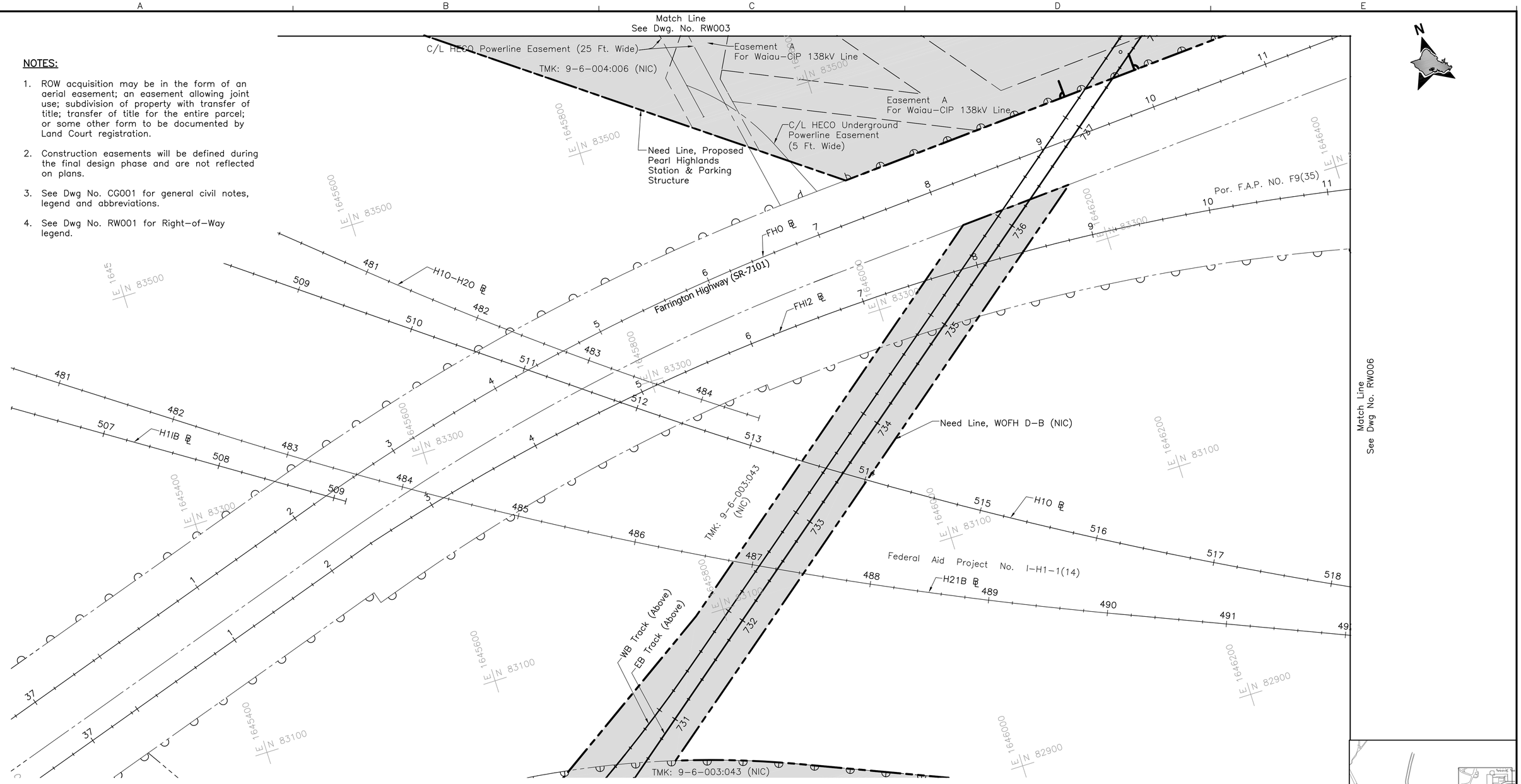
NOTES:

1. ROW acquisition may be in the form of an aerial easement; an easement allowing joint use; subdivision of property with transfer of title; transfer of title for the entire parcel; or some other form to be documented by Land Court registration.
2. Construction easements will be defined during the final design phase and are not reflected on plans.
3. See Dwg No. CG001 for general civil notes, legend and abbreviations.
4. See Dwg No. RW001 for Right-of-Way legend.



Tax Map Key Number	Parcel Acquisitions	House Number	Street Name	Land Use
9-6-003:043	Access Easement	–	–	Public
9-6-004:006	Full	–	–	Commercial

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: L Karamatsu
Drawn: L Karamatsu
Checked: K Wong
Approved: A Borst
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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Subconsultant:

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PEARL HIGHLANDS STATION

EXISTING RIGHT-OF-WAY & PROPOSED ACQUISITION TABULATIONS

SHEET 5 OF 6

Contract No.: SV-245
CADD File: SC4-B04-RW005
Drawing No.: RW005
Rev.:
Scale: 1"=40'
Page No. 19 of 180

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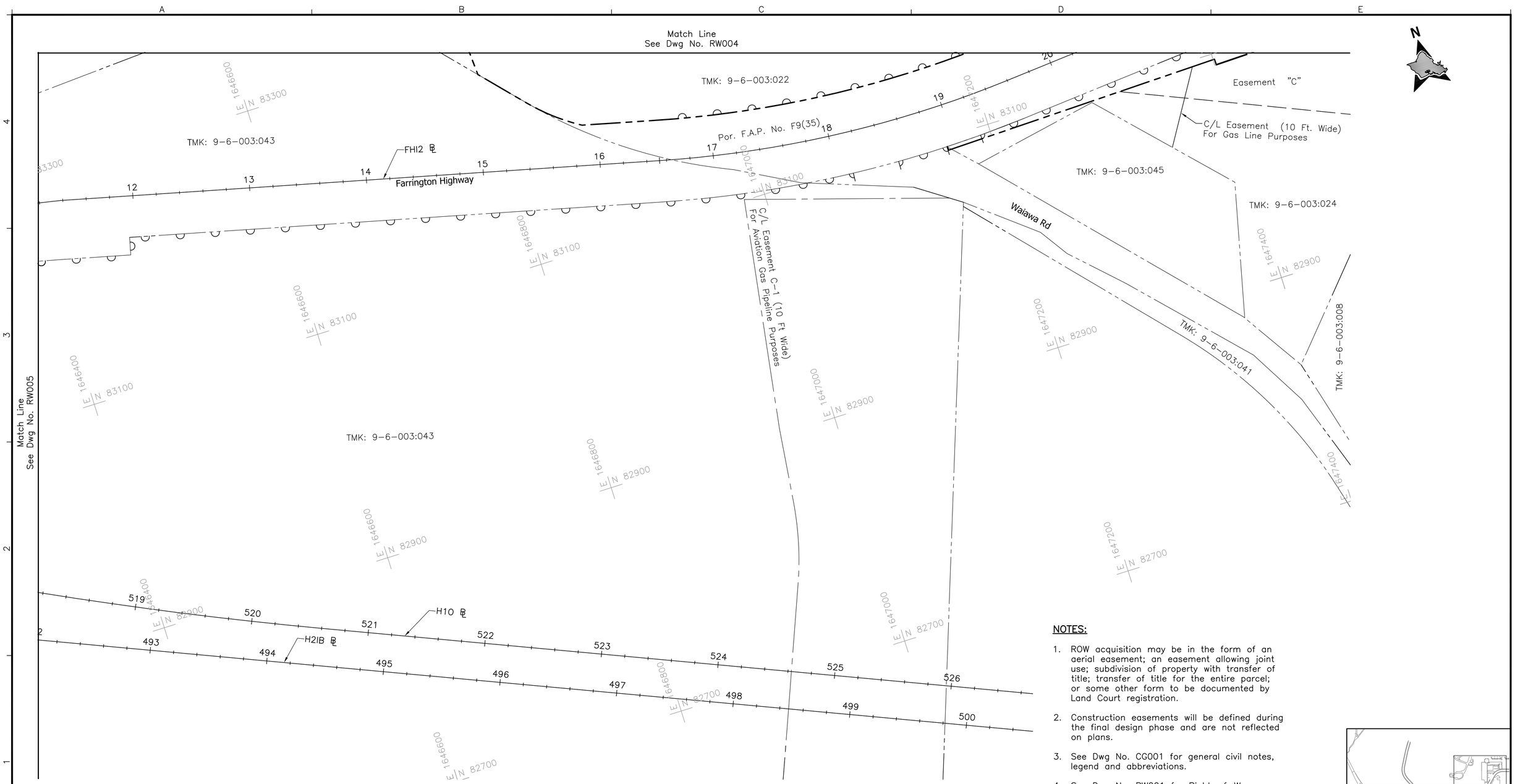

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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PEARL HIGHLANDS STATION

EXISTING RIGHT-OF-WAY & PROPOSED ACQUISITION TABULATIONS

SHEET 6 OF 6

Contract No.: SV-245
CADD File: SC4-B04-RW006
Drawing No.: RW006 Rev.
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Page No. 20 of 180

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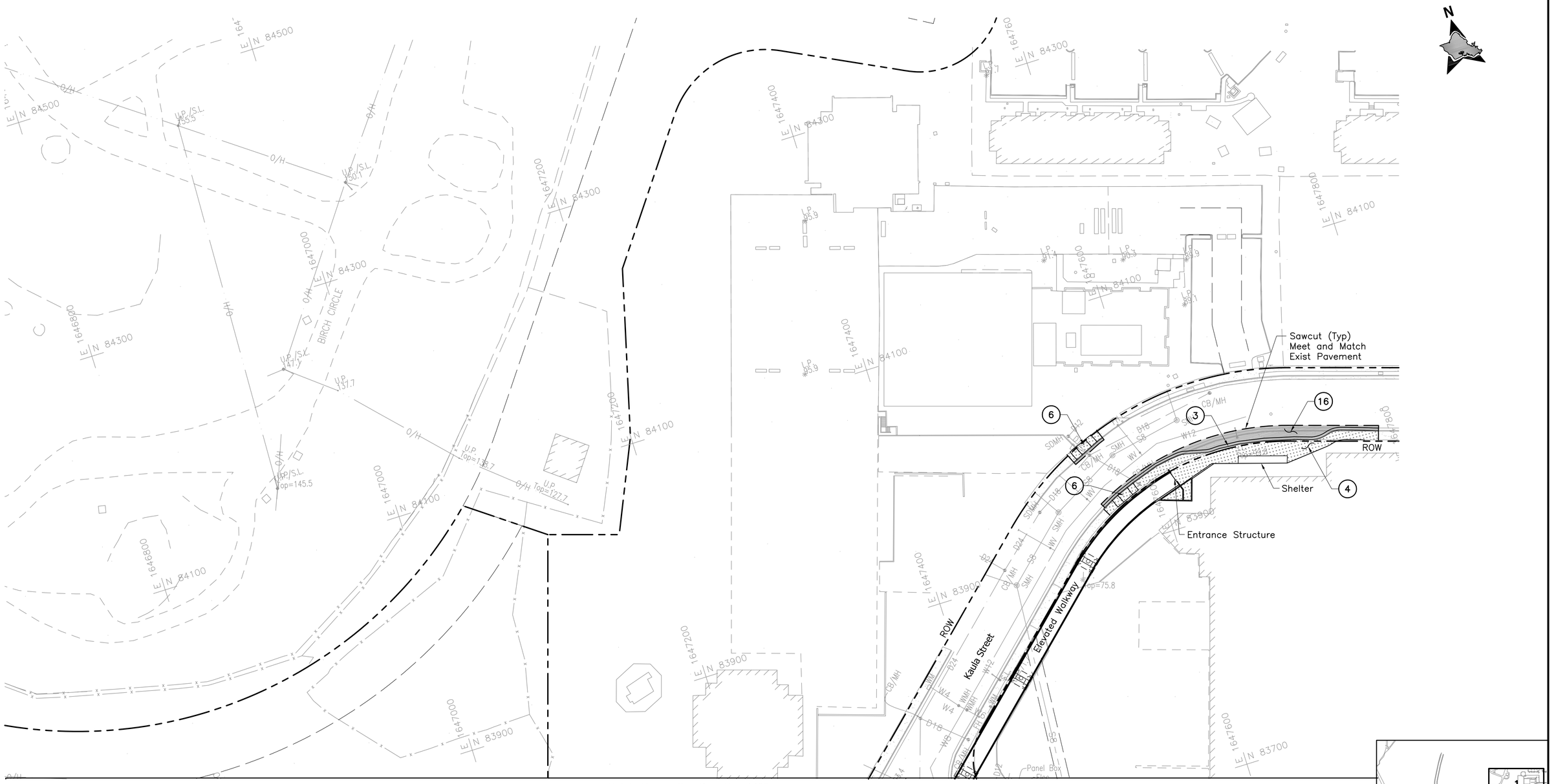

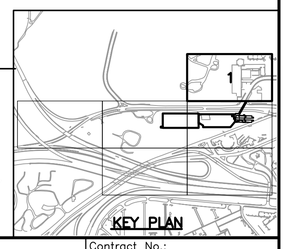

ROADWAY CONSTRUCTION LEGEND:

- Proposed full depth pavement area.
- Proposed pavement mill & overlay area.
- Proposed sidewalk, curb & gutter, curb, and median island paving area.
- Proposed landscaped median island area.

NOTES:

1. For roadway construction notes, see Dwg CG002.
2. For general roadway construction notes, see Dwg CG002.

40' 0 40'

Rev	By	Date	Description
.			

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: B Wardell
Drawn: J Derosier
Checked: E Liberman
Approved: M Hall
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

CIVIL SITE PLAN

SHEET 1 OF 3

Contract No.: SV-245
CADD File: SC4-B10-RP001
Drawing No.: RP001 Rev.
Scale: 1"=40'
Page No. 21 of 180

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Kamehameha Highway (SR-99)

Walhona Street

Waiawa Stream

Sawcut (Typ)

ROW

PHR1–1

PHR1–2

PHR1–3

PHR1–4

BP 100+00.00

PC 101+65.73

PCC 102+27.32

PT 102+74.67

315° 16' 35"
L=233.02'

PC 105+07.69

PT 106+07.39

287° 24' 34"
L=102.73'

BP 300+00.00

287° 10' 50"
L=213.95'

Parking Structure

Future Bus Ramp From
H–2 Inbound (By Others)

Future Auto Ramp From
H–2 Inbound (By Others)

Elevated Ramp From
H–2 Inbound (By Others)

Exist 138kV & 12kV
Power Lines to Remain

Surveyed–Ordinary
High Water Mark

Guideway Column
& Structure by WOFH D–B (Typ)

WB Track

EB Track

Match Line See Dwg No. RP004

Curve Table: Pearl Highlands Ramp 1 (PHR1)			
Curve #	Radius	Length	Delta
PHR1–1	1460.00'	165.73'	6°30'14"
PHR1–2	50.00'	61.53'	70°30'24"
PHR1–3	74.00'	47.35'	36°39'35"
PHR1–4	205.00'	99.71'	27°52'00"

ROADWAY CONSTRUCTION LEGEND:

- Proposed full depth pavement area.
- Proposed pavement mill & overlay area.
- Proposed sidewalk, curb & gutter, curb, and median island paving area.
- Proposed roadway and sidewalk improvements on proposed structure (see structural drawings)
- Proposed landscaped median island area.

NOTES:

1. For roadway construction notes, see Dwg CG002.
2. For general roadway construction notes, see Dwg CG002.
3. For roadway profiles, see Dwgs RP101 & RP102.

40' 0 40'

KEY PLAN

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: B Wardell
Drawn: J Derosier
Checked: E Liberman
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

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PEARL HIGHLANDS STATION

CIVIL SITE PLAN

SHEET 2 OF 3

Contract No.: SV–245
CADD File: SC4–B10–RP003
Drawing No: RP003 Rev.
Scale: 1"=40'
Page No. 22 of 180

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Match Line See Dwg. No RP001

Match Line See Dwg No RP003

Kamehameha Highway (SR-99)

Sawcut (Typ)

Sawcut (Typ) Meet and Match Exist Pavement

Kaula Street

HART Elevated Walkway

Sawcut (Typ) Meet and Match Exist Pavement

℄ PHR2

287° 10' 50" L=213.95'

293° 07' 12" L=146.21'

End Ret Wall

287° 24' 03" L=604.32'

277°16'51" L=53.13'

PC 302+13.95

PT 302+65.78

Beg. Ret Wall

PC 304+11.99

PT 304+61.90

PT 310+66.22

PT 311+19.35

PHR2-5

Parking Structure

PHR2-6

WB Track

EB Track

Transit Station

B-226 [GPS]

Bus Transit Center

Guideway Column & Structure by WOFH D-B (Typ)

Parking Structure

B-113

EP 501+79.88

Guideway Structure by WOFH D-B

Farrington Highway Outbound (SR-93)

ROW

Surveyed-Ordinary High Water Mark

℄ PHR3

Auto Exit Ramp 501

203° 25' 16" L=150.69'

Waiawa Stream

Pedestrian Ramp

PT 500+29.19

PC 500+00.12

BP 500+00.00

PHR3-1

Sawcut (Typ) Meet and Match Exist Pavement

Farrington Highway Inbound (SR-93)

D CX002

C CX002

40' 0 40'

KEY PLAN

Curve Table: Pearl Highlands Ramp 2 (PHR2)			
Curve #	Radius	Length	Delta
PHR2-5	500.00'	51.83'	5°56'22"
PHR2-6	500.00'	49.91'	5°43'08"

Curve Table: Pearl Highlands Ramp 3 (PHR3)			
Curve #	Radius	Length	Delta
PHR3-1	60.00'	28.47'	27°11'24"

ROADWAY CONSTRUCTION LEGEND:

- Proposed full depth pavement area.
- Proposed pavement mill & overlay area.
- Proposed sidewalk, curb & gutter, curb, and median island paving area.
- Proposed roadway and sidewalk improvements on proposed structure (see structural drawings)
- Proposed landscaped median island area.

NOTES:

1. For roadway construction notes, see Dwg CG002.
2. For general roadway construction notes, see Dwg CG002.
3. For roadway profiles, see Dwgs RP102 & RP103.

Rev	By	Date	Description
.			

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: B Wardell
Drawn: J Derosier
Checked: E Liberman
Approved: M Hall
Date: 09-11-09

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PEARL HIGHLANDS STATION

CIVIL SITE PLAN

SHEET 3 OF 3

Contract No.: SV-245
CADD File: SC4-B10-RP004
Drawing No: RP004 Rev.
Scale: 1"=40'
Page No. 23 of 180

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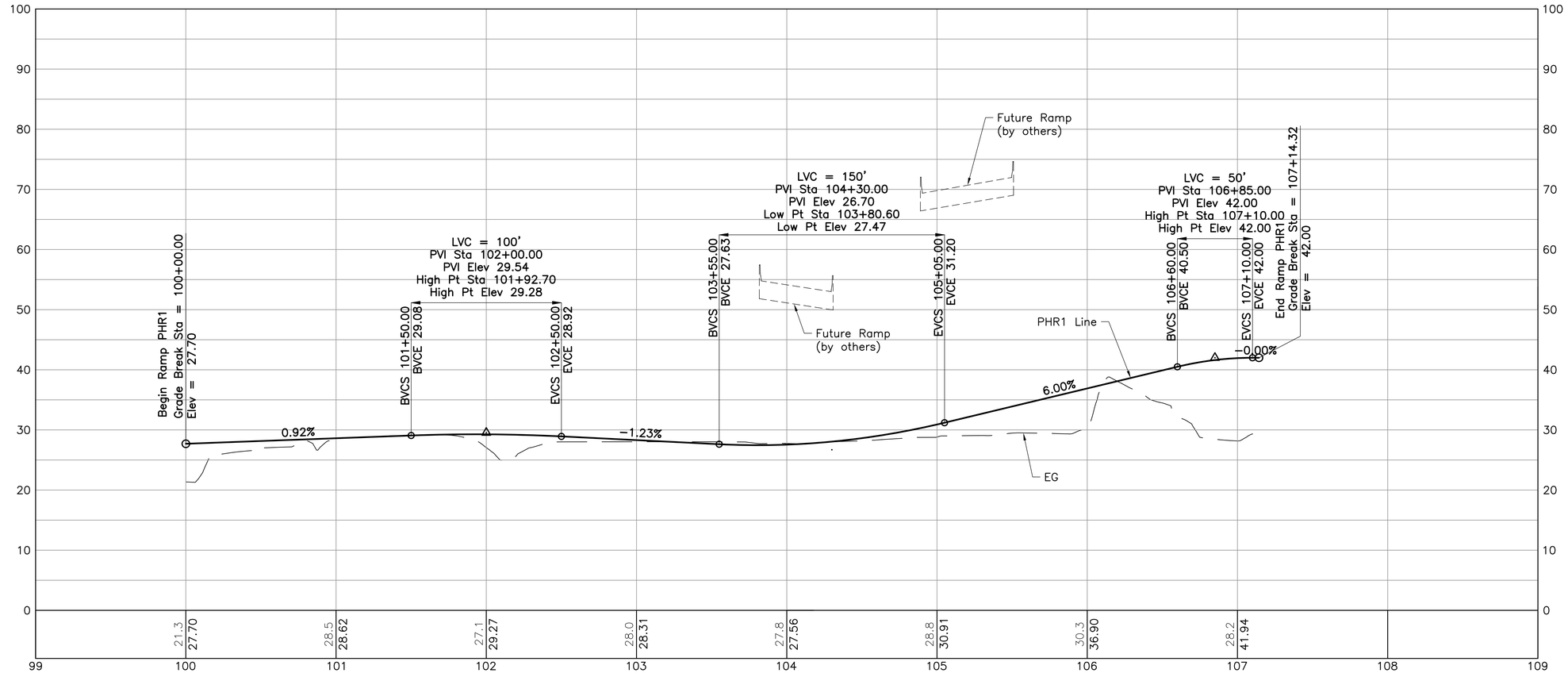

H 40' 0 40'

V 10' 0 10'

Rev	By	Date	Description
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PEARL HIGHLANDS STATION

RAMP PHR1 PROFILE

Contract No.: SV-245
CADD File: SC4-B10-RP101
Drawing No: RP101 Rev.
Scale: 1"=40' H, 1"=10' V
Page No. 24 of 180

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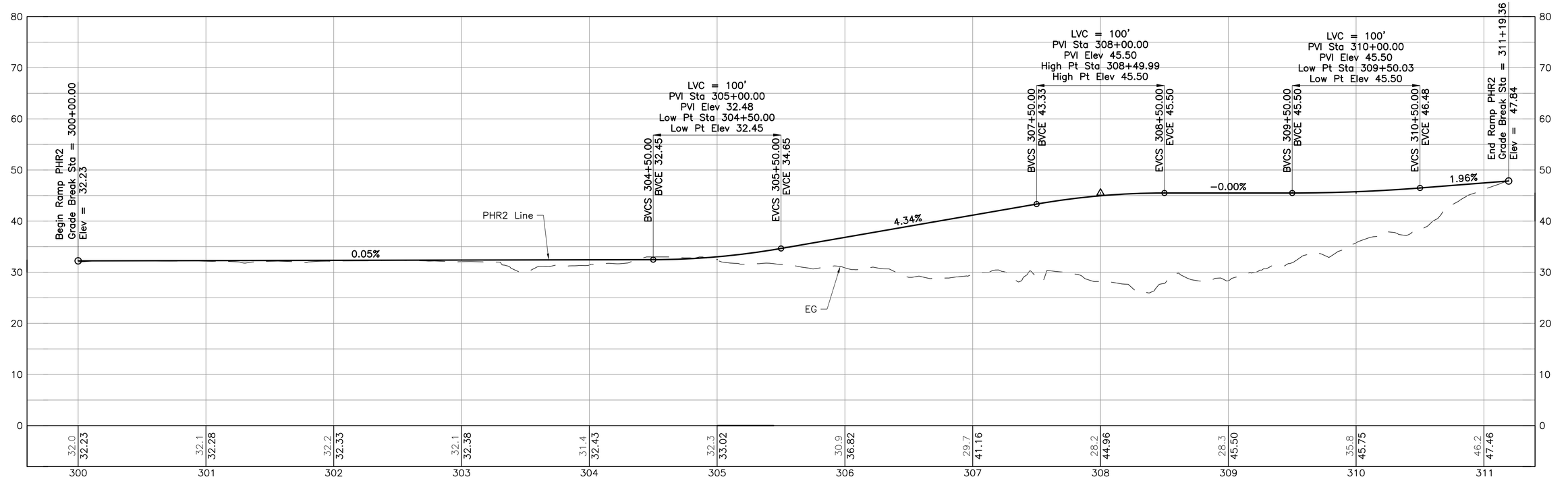

Rev	By	Date	Description
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PEARL HIGHLANDS STATION

RAMP PHR2 PROFILE

Contract No.: SV−245
CADD File: SC4−B10−RP102
Drawing No: RP102 Rev.
Scale: 1"=40' H, 1"=10' V
Page No. 25 of 180

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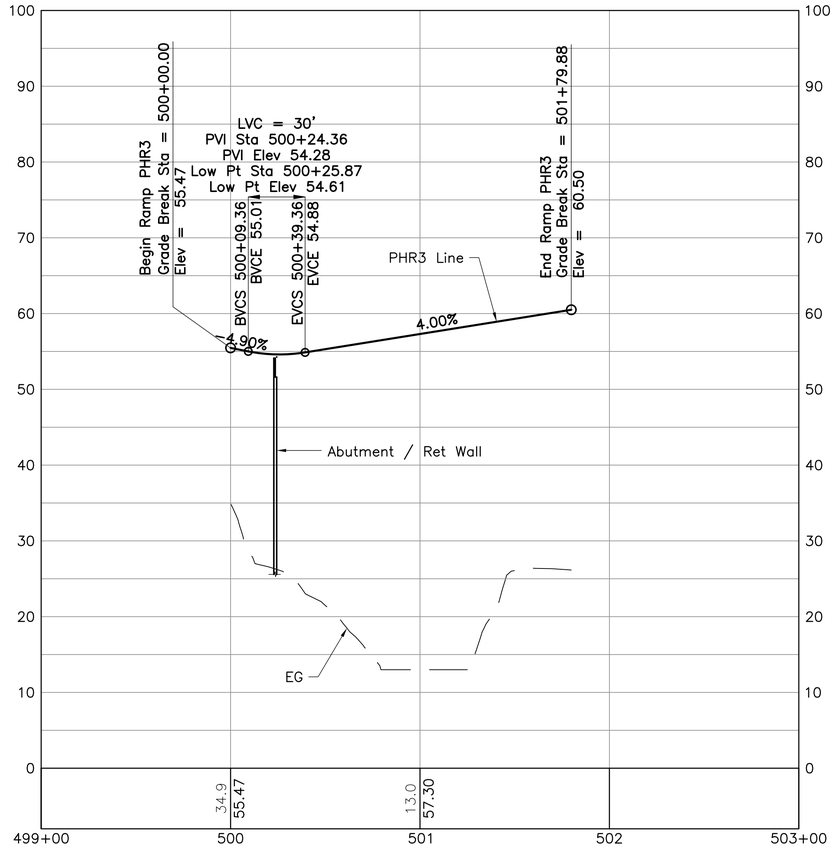

H 40' 0 40'

V 10' 0 10'

Rev	By	Date	Description
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PEARL HIGHLANDS STATION

RAMP PHR3 PROFILE

Contract No.: SV-245
CADD File: SC4-B10-RP103
Drawing No: RP103 Rev.
Scale: 1"=40' H, 1"=10' V
Page No. 26 of 180

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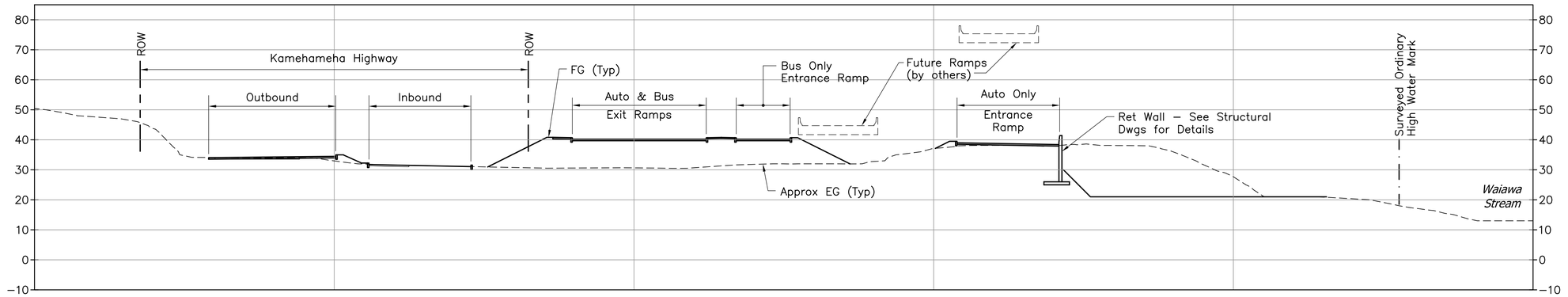
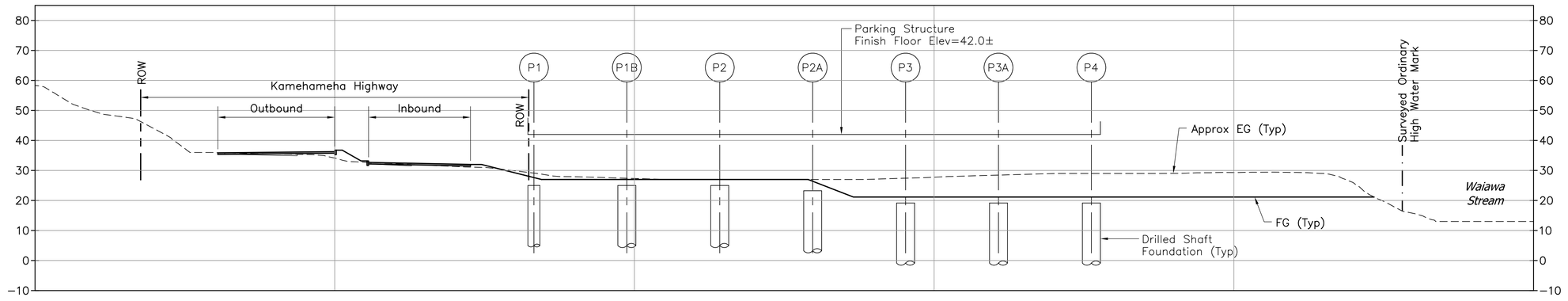


SECTION A CX001 RP003



SECTION B CX001 RP003

20' 0 20'

Rev	By	Date	Description

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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

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PEARL HIGHLANDS STATION

CIVIL CROSS SECTIONS

SHEET 1 OF 2

Contract No.: SV–245
CADD File: SC4–B14–CX001
Drawing No: CX001 Rev.
Scale: 1"=20'
Page No. 27 of 180

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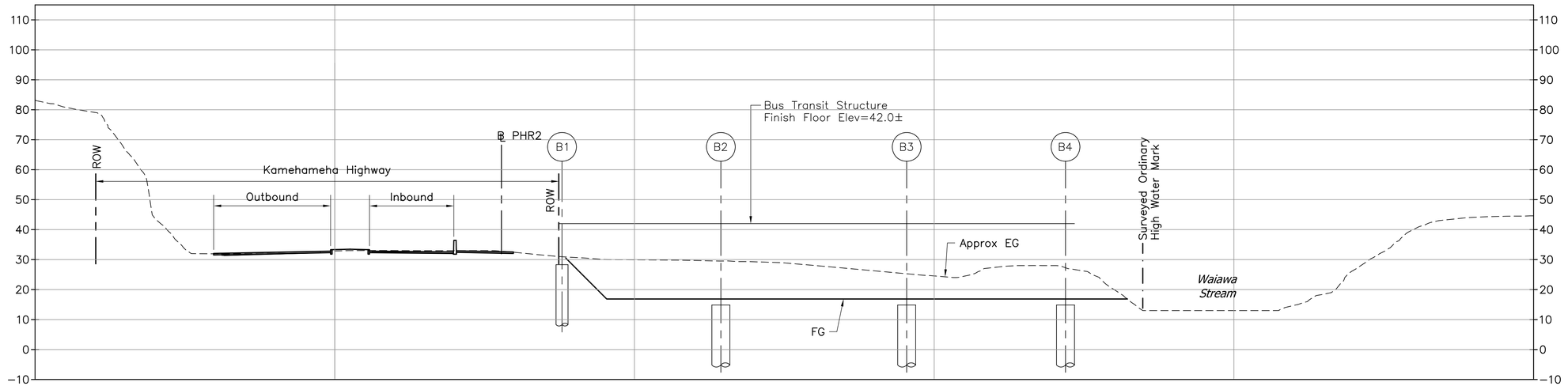

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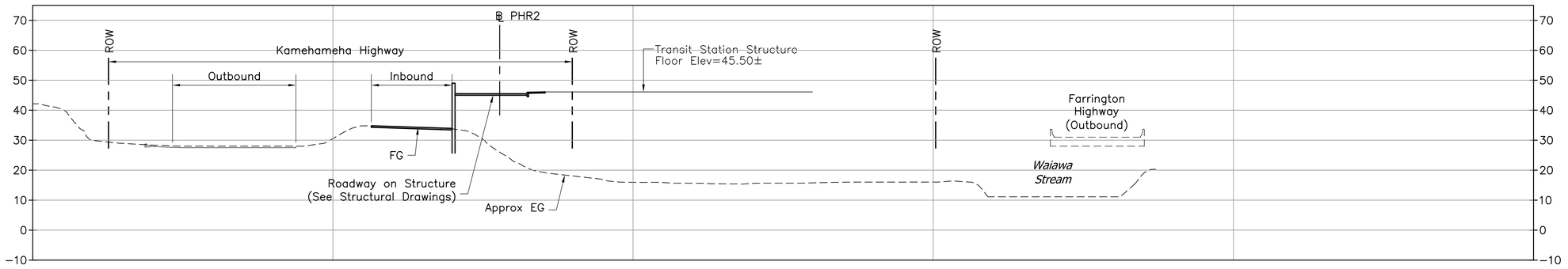

SECTION D / CX002 RP004

20' 0 20'

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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PEARL HIGHLANDS STATION

CIVIL CROSS SECTIONS

SHEET 2 OF 2

Contract No.: SV–245
CADD File: SC4–B14–CX002
Drawing No: CX002 Rev.
Scale: 1"=20'
Page No. 28 of 180

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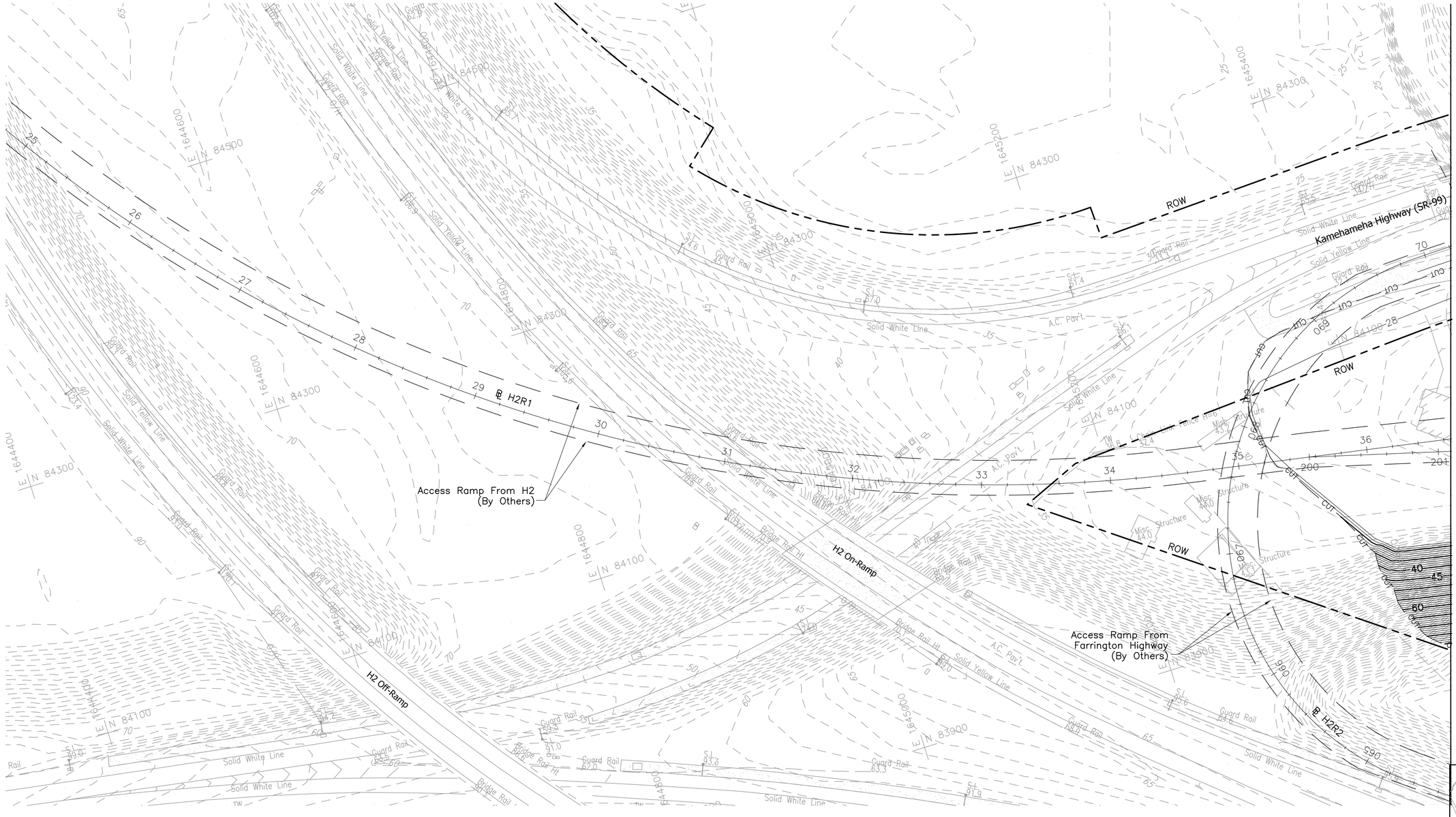

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PEARL HIGHLANDS STATION

GRADING PLAN

SHEET 1 OF 3

Contract No.: SV–245
CADD File: SC4–B16–GD002
Drawing No: GD002 Rev.
Scale: 1"=40'
Page No. 29 of 180

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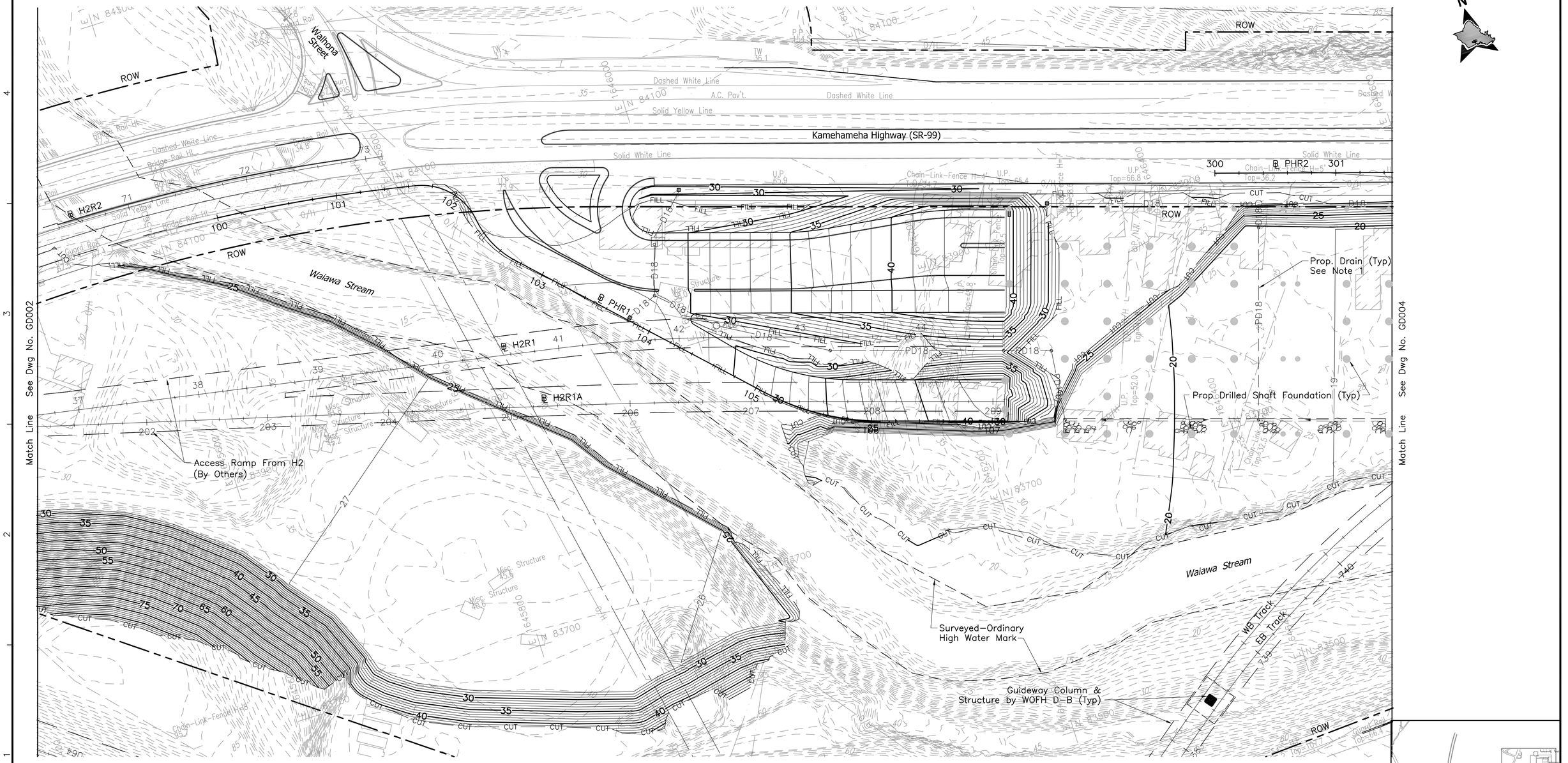

NOTES:

1. For details of drainage system, see Dwgs GD101, GD102, GD201 & GD202.

Rev	By	Date	Description
.			

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

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PEARL HIGHLANDS STATION

GRADING PLAN

SHEET 2 OF 3

Contract No.: SV–245
CADD File: SC4–B16–GD003
Drawing No.: GD003 Rev.
Scale: 1"=40'
Page No. 30 of 180

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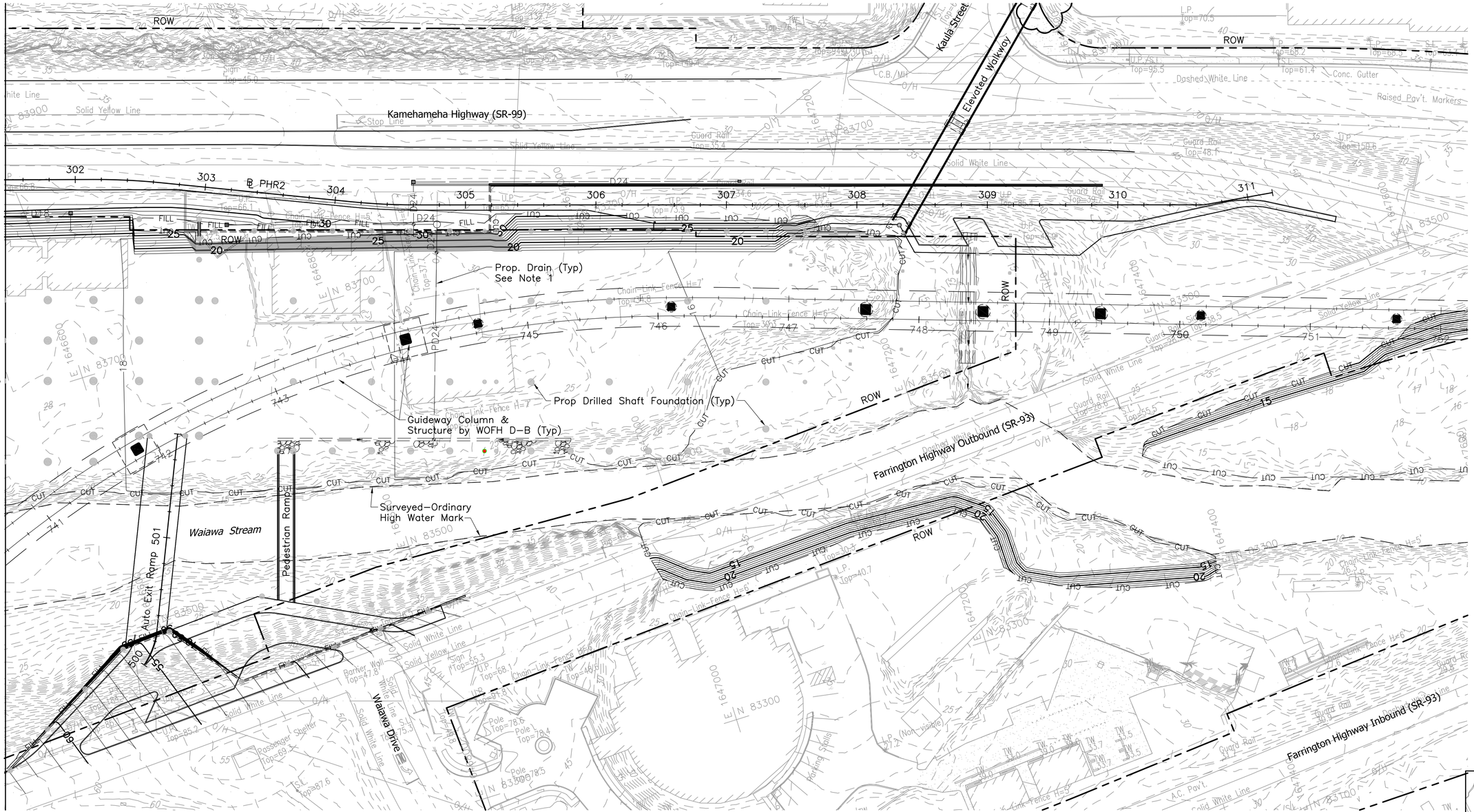
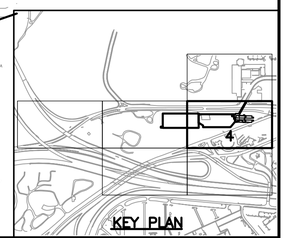


NOTES:

1. For details of drainage system, see Dwgs GD101, GD102, GD201 & GD202.

40' 0 40'



Rev	By	Date	Description
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PEARL HIGHLANDS STATION

GRADING PLAN

SHEET 3 OF 3

Contract No.: SV-245
CADD File: SC4-B16-GD004
Drawing No.: GD004 Rev.
Scale: 1"=40'
Page No. 31 of 180

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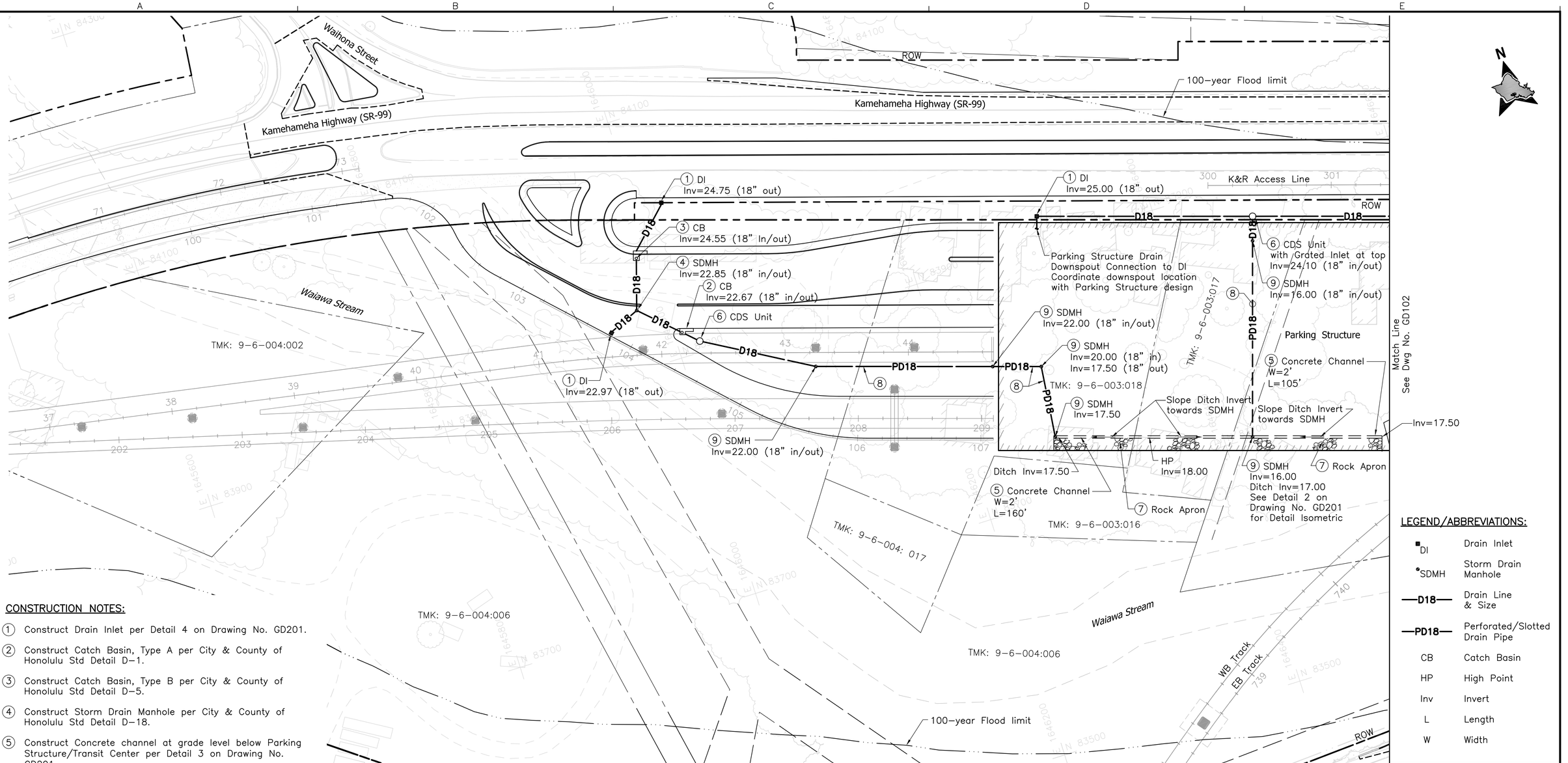
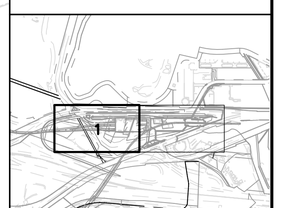


CONSTRUCTION NOTES:

1. Construct Drain Inlet per Detail 4 on Drawing No. GD201.
2. Construct Catch Basin, Type A per City & County of Honolulu Std Detail D-1.
3. Construct Catch Basin, Type B per City & County of Honolulu Std Detail D-5.
4. Construct Storm Drain Manhole per City & County of Honolulu Std Detail D-18.
5. Construct Concrete channel at grade level below Parking Structure/Transit Center per Detail 3 on Drawing No. GD201.
6. Construct Storm Water Treatment Unit, CDS Model CDS2025 with grated inlet on top (where noted) by Contech, or approved equivalent.
7. Construct Crushed Rock Apron per Detail 3 on Drawing No. GD201
8. Construct Perforated/Slotted Drain pipe per Detail 4 on Drawing No. GD202.
9. Construct Storm Drain Manhole per City & County of Honolulu Std Detail D-17.

LEGEND/ABBREVIATIONS:

DI	Drain Inlet
SDMH	Storm Drain Manhole
D18	Drain Line & Size
PD18	Perforated/Slotted Drain Pipe
CB	Catch Basin
HP	High Point
Inv	Invert
L	Length
W	Width



KEY PLAN

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: E Leung
Drawn: D Chua
Checked: N Orense
Approved: M Yonamine
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: LYON ASSOCIATES
CIVIL ENGINEERING / CONSTRUCTION MANAGEMENT
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www.lyonassociates.com

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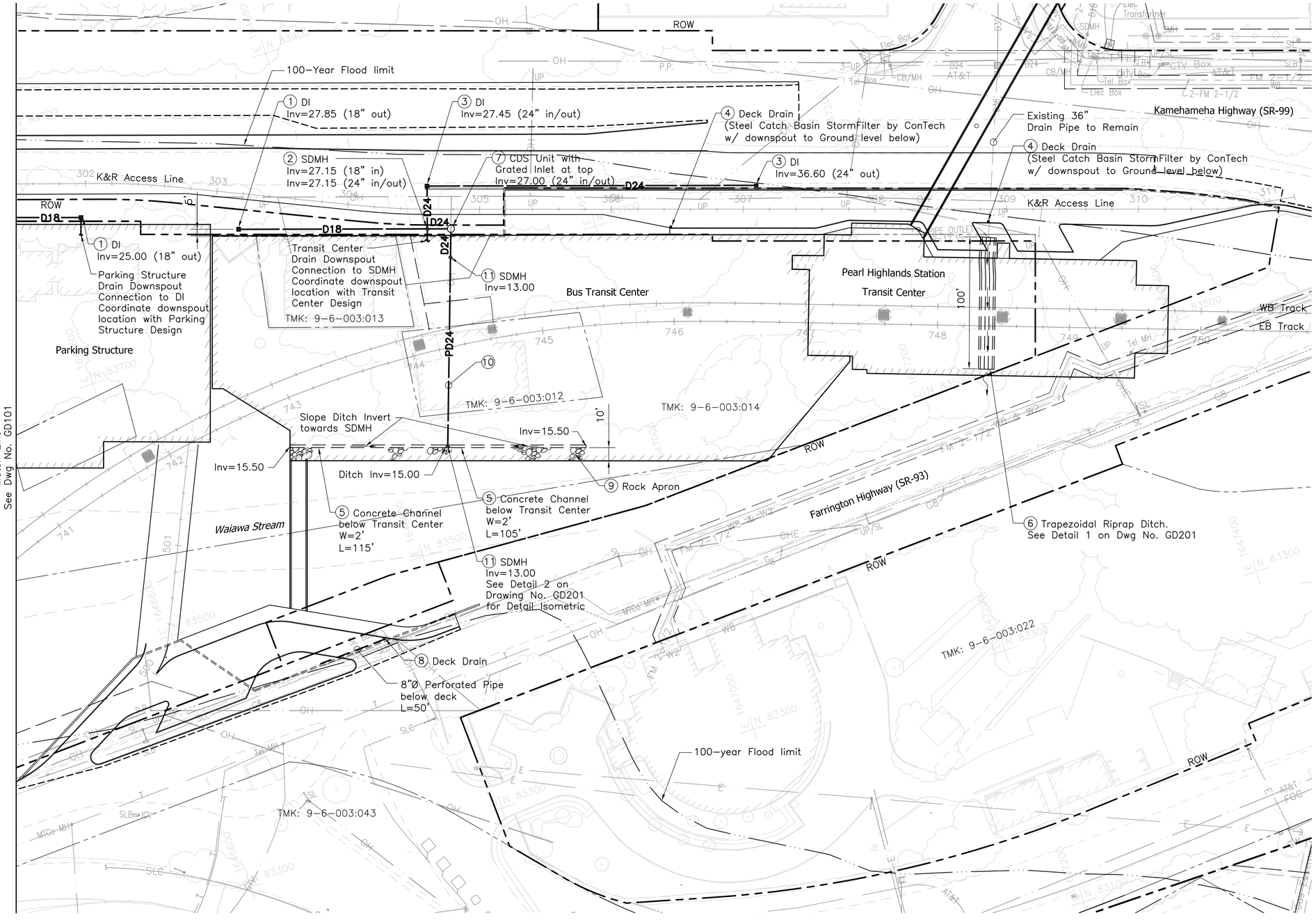
PEARL HIGHLANDS STATION

DRAINAGE LAYOUT PLAN

SHEET 1 OF 2

Contract No.: SV-245
CADD File: SC4-B16-GD101
Drawing No.: GD101 Rev.
Scale: 1"=40'
Page No. 32 of 180

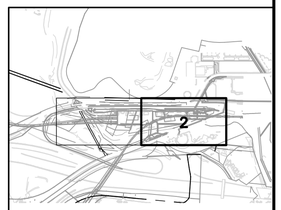


LEGEND/ABBREVIATIONS:

DI	Drain Inlet
SDMH	Storm Drain Manhole
—D18—	Drain Line & Size
—PD18—	Perforated/Slotted Drain Pipe
CB	Catch Basin
HP	High Point
Inv	Invert
L	Length
W	Width

CONSTRUCTION NOTES:

1. Construct Drain Inlet per Detail 4 on Drawing No. GD201.
2. Construct Storm Drain Manhole per City & County of Honolulu Std Detail D-18.
3. Construct Grated Drop Inlet, Type 1A-9P per HDOT Std Plan No. H-08.
4. Construct Deck Drain, Steel Catch Basin StormFilter by Contech, or approved equivalent. Provide downspout to existing grade below with splash block & crushed rock apron per Detail 1 on Drawing No. GD202.
5. Construct Concrete channel at grade level below Parking Structure/Transit Center per Detail 3 on Drawing No. GD201.
6. Construct Trapezoidal Riprap Ditch for Existing 36" Drain pipe per Detail 1 on Drawing No. GD201.
7. Construct Storm Water Treatment Unit, CDS Model CDS2025 with grated inlet on top by Contech, or approved equivalent.
8. Construct Deck Drain, Steel Catch Basin StormFilter by Contech, or approved equivalent. Provide downspout with 8"Ø perforated outlet per Detail 2 on Drawing No. GD202.
9. Construct Crushed Rock Apron per Detail 3 on Drawing No. GD201
10. Construct Perforated/Slotted Drain pipe per Detail 4 on Drawing No. GD202.
11. Construct Storm Drain Manhole per City & County of Honolulu Std Detail D-17.



KEY PLAN

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: E Leung
Drawn: D Chua
Checked: N Orense
Approved: M Yonamine
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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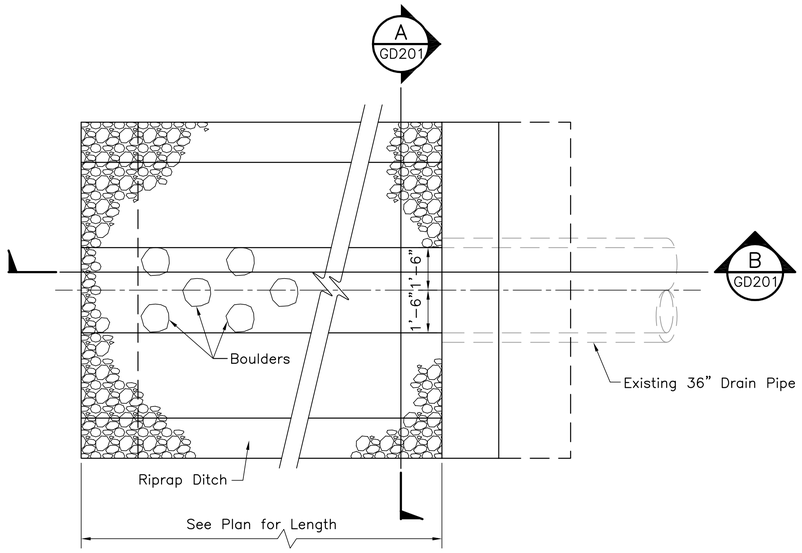
PEARL HIGHLANDS STATION

DRAINAGE LAYOUT PLAN

SHEET 2 OF 2

Contract No.: SV-245
CADD File: SC4-B16-GD102
Drawing No.: GD102 Rev.
Scale: 1"=40'
Page No.: 33 of 180



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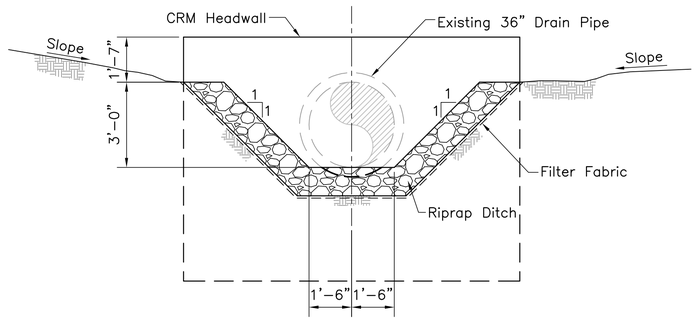
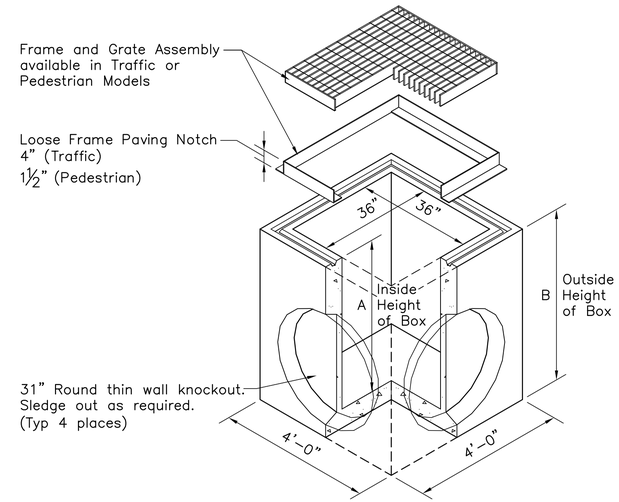
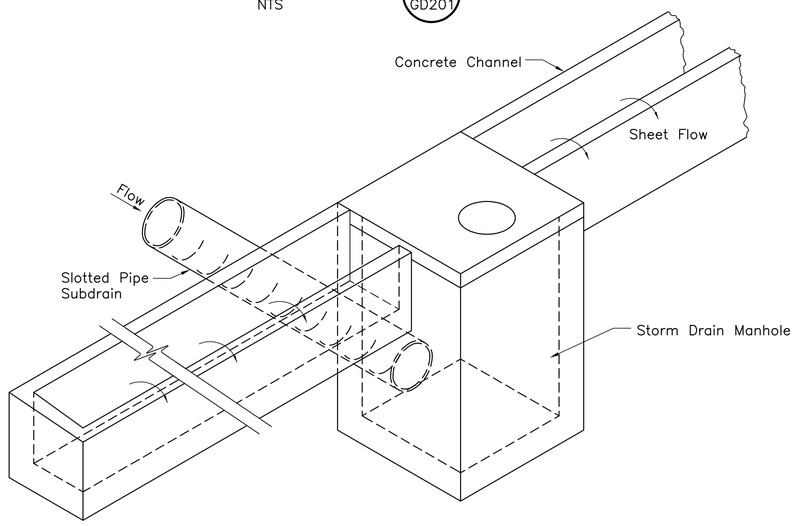


SECTION A GD201
NTS

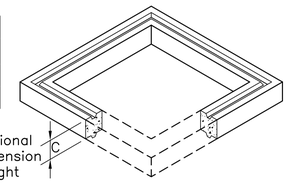
36"x 36" Drop Inlet			
Model No.	A	B	Box Weight
DI363636	36"	42"	3748 lbs.
DI363648	48"	54"	4752 lbs.





ISOMETRIC–DRAINAGE OUTFALL MANHOLE 2 GD201
NTS

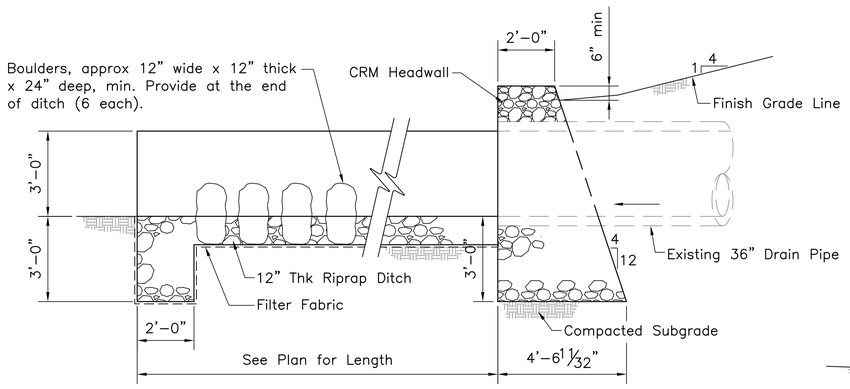
Extension		
Model No.	C	Weight
RS363606	6"	525 lbs
RS363612	12"	1050 lbs



Box Design Load:
H–20 Traffic

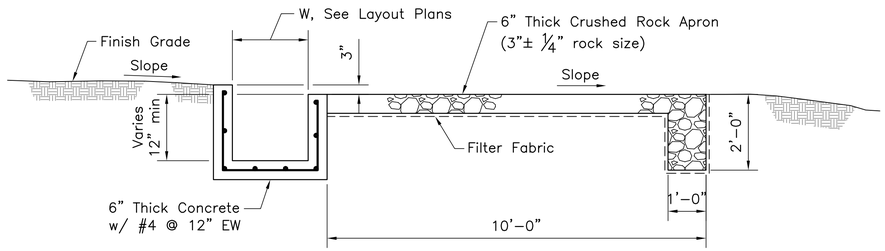
For complete design, and product information, contact Jensen Precast.

DROP INLET DETAIL 4 GD201
NTS



SECTION B GD201
NTS

TRAPEZOIDAL RIPRAP DITCH DETAIL 1 GD201
NTS



CONCRETE CHANNEL DETAIL 3 GD201
NTS

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: E Leung
Drawn: D Chua
Checked: N Orense
Approved: M Yonamine
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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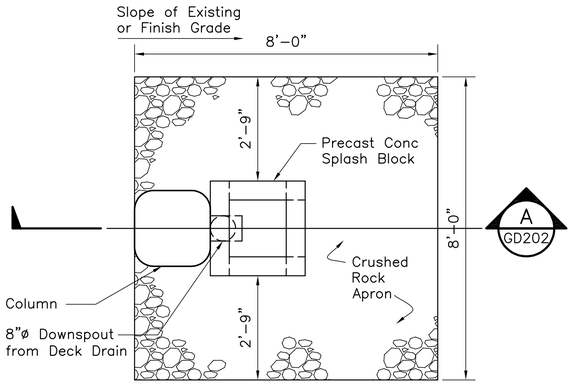
PEARL HIGHLANDS STATION

DRAINAGE DETAILS & SECTIONS

SHEET 1 OF 2

Contract No.: SV–245
CADD File: SC4–B17–GD201
Drawing No: GD201
Rev.
Scale: NTS
Page No. 34 of 180



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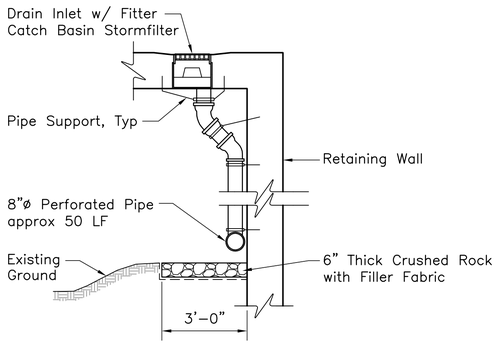
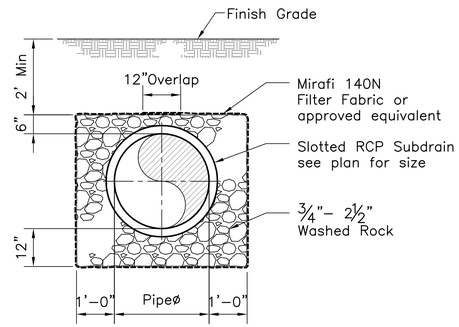
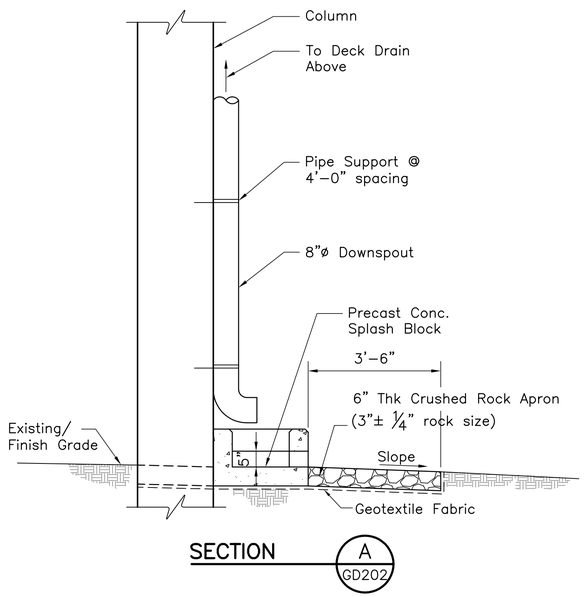


DOWNSPOUT DISCHARGE DETAIL–2 (2 / GD202)
NTS

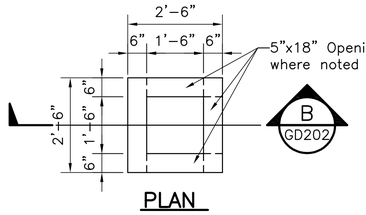


PERFORATED DRAIN DETAILS (4 / GD202)
1/2" = 1'–0"



SECTION (A / GD202)

DOWNSPOUT DISCHARGE DETAIL–1 (1 / GD202)
1/2" = 1'–0"



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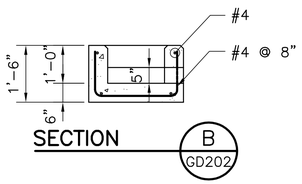

SECTION (B / GD202)

SPLASH BLOCK DETAIL (3 / GD202)
1/2" = 1'–0"

1' 0 2' 4'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: E Leung
Drawn: M Lauriaga
Checked: N Orense
Approved: M Yonamine
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
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PEARL HIGHLANDS STATION

DRAINAGE DETAILS & SECTIONS

SHEET 2 OF 2

Contract No.: SV–245
CADD File: SC4–B17–GD202
Drawing No: GD202 Rev.
Scale: As Noted
Page No. 35 of 180

PAVEMENT MARKING NOTES:

1	Centerline	–	Double Solid 4" Yellow Stripe with RPM
2	Centerline	–	Single Solid 4" Yellow Stripe with RPM
3	Centerline	–	RPM
4	Lane Line	–	RPM
5	Edge Line	–	Single Solid 4" White Stripe with RPM
6	Edge Line	–	Single Solid 8" White Stripe with RPM
7	Edge Line	–	Single Solid 4" Yellow Stripe with RPM
8	Edge Line	–	Single Solid 8" Yellow Stripe with RPM
9	Lane Line	–	Single Solid 4" White Stripe with RPM
10	Lane Line	–	Single Solid 8" White Stripe with RPM
11	Lane Line	–	Double Solid 4" White Stripe with RPM
12	Lane Line	–	Single Solid 4" White Stripe with RPM
13	Lane Line	–	Double Skip 4" Yellow Stripe with RPM
14	Lane Line	–	Single Dashed 4" White Stripe
15	Lane Line	–	Single Dashed 4" Yellow Stripe
16	Lane Line	–	Single Dashed 8" White Stripe with RPM
17	Transverse Markings	–	Solid White Triangles
18	Transverse Markings	–	Single Solid 12" White Stripe
19	Transverse Markings	–	Single Solid 12" Yellow Stripe
20	Transverse Markings	–	Turn Arrows
21	Transverse Markings	–	Text
22	Transverse Markings	–	Single Solid 4" White Stripe

GENERAL PAVEMENT MARKING NOTES:

1. See traffic signal plan sheets for proposed modifications and/or improvements to existing traffic signal systems.

RAISED PAVEMENT MARKER (RPM) SCHEDULE:

- Type A Non–Reflective White Marker
- Type C or CL Red–Clear Reflective Marker
- Type D or DL Two–Way Yellow Reflective Marker
- Type H or HL One–Way Yellow Reflective Marker
- Type J Non–Reflective Yellow Marker
- Direction of Vehicle Travel
- No Vehicle Travel

Rev	By	Date	Description
.			

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: B Wardell
Drawn: J Derosier
Checked: E Liberman
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

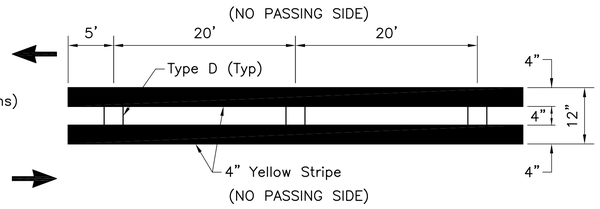
STRIPING
NOTES AND LEGEND

Contract No.: SV–245
CADD File: SC4–C01–TG001
Drawing No.: TG001 Rev.:
Scale: N/A
Page No.: 36 of 180

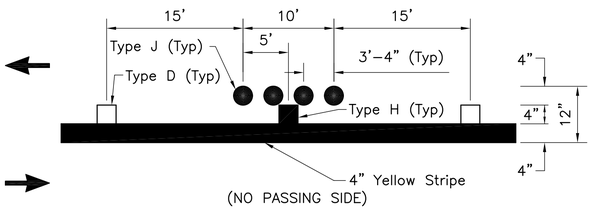
2009–09–03 3:50 PM K:\CADD\03 Civil\Segment C\Sheet Files\SC4 Pearl Highlands Station\SC4–C01–TG001.dwg

PAVEMENT MARKING LEGEND

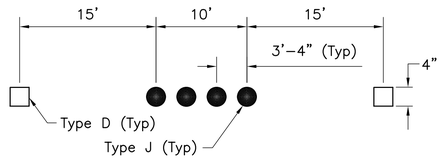
1 — Centerline – Passing Prohibited (Both Directions)
Double Solid 4" Yellow Stripe with
Type D Raised Pavement Markers RPM



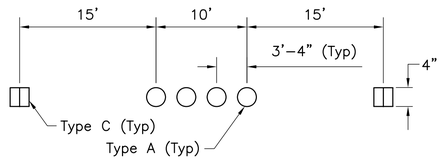
2 — Centerline – Passing Prohibited (One Direction)
Single Solid 4" Yellow Stripe with
Type D RPM with
Type H RPM with
Type J RPM



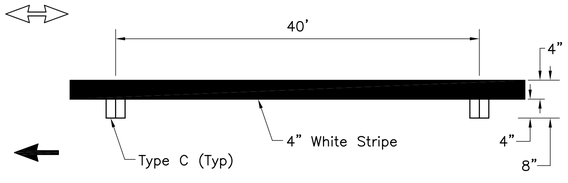
3 — Centerline – Passing Permitted
Type D RPM with
Type J RPM



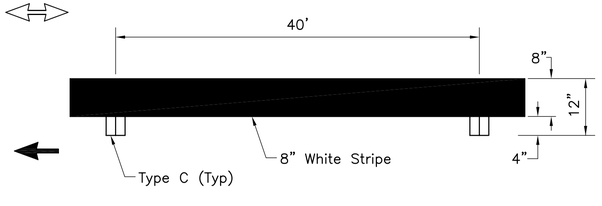
4 — Lane Line – Passing Permitted
Type A RPM with
Type C RPM



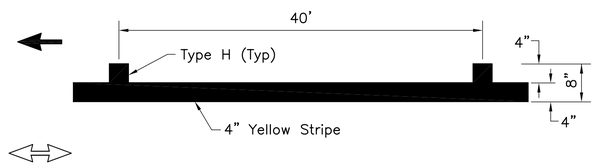
5 — Edge Line
Single Solid 4" White Stripe with
Type C RPM



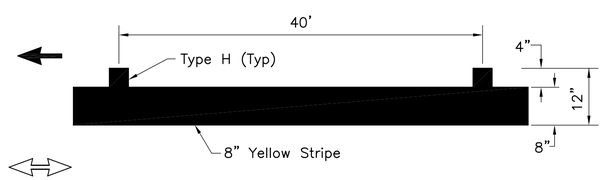
6 — Edge Line
Single Solid 8" White Stripe with
Type C RPM



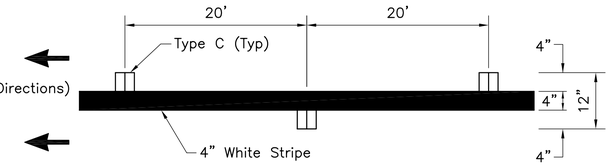
7 — Edge Line
Single Solid 4" Yellow Stripe with
Type H RPM



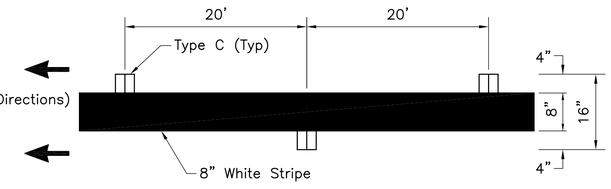
8 — Edge Line
Single Solid 8" Yellow Stripe with
Type H RPM



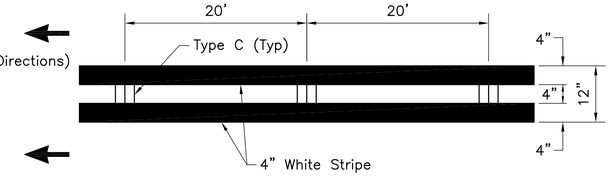
9 — Lane Line – Lane Change Prohibited (Both Directions)
Single Solid 4" White Stripe with
Type C RPM



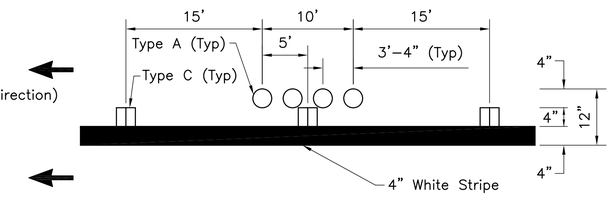
10 — Lane Line – Lane Change Prohibited (Both Directions)
Single Solid 8" White Stripe with
Type C RPM



11 — Lane Line – Lane Change Prohibited (Both Directions)
Double Solid 4" White Stripe with
Type C RPM



12 — Lane Line – Lane Change Prohibited (One Direction)
Single Solid 4" White Stripe with
Type A RPM with
Type C RPM



Rev	By	Date	Description
.			

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: B Wardell
Drawn: J Derosier
Checked: E Liberman
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

TYPICAL PAVEMENT MARKING LEGEND AND DETAILS

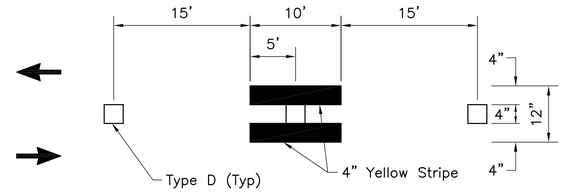
SHEET 1 OF 2

Contract No.: SV–245
CADD File: SC4–C01–TG002
Drawing No: TG002 Rev.
Scale: NTS
Page No. 37 of 180

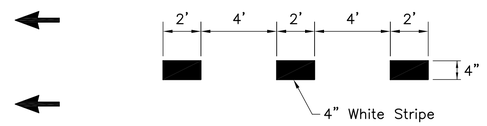
2009–09–10 8:13 AM K:\CADD\03 Civil\Segment C\Sheet Files\SC4 Pearl Highlands Station\SC4–C01–TG002–003.dwg

PAVEMENT MARKING LEGEND

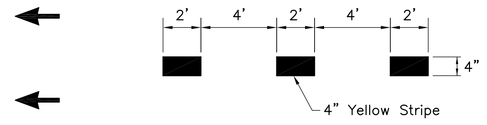
(13) Lane Line – Reversible
Double Skip 4" Yellow Stripe with Type D RPM



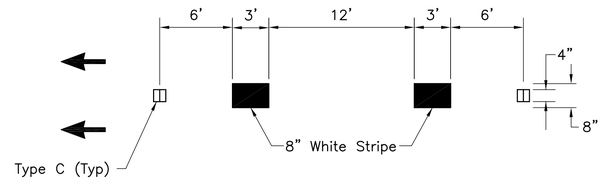
(14) Lane Line – Guidance
Single Dashed 4" White Stripe



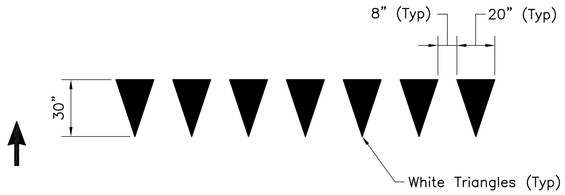
(15) Lane Line – Guidance
Single Dashed 4" Yellow Stripe



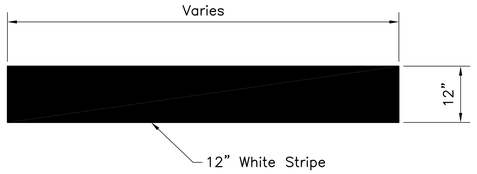
(16) Lane Line – Drop Lane
Single Dashed 8" White Stripe with Type C RPM



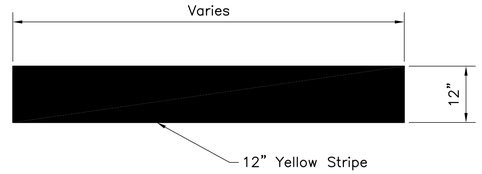
(17) Transverse Markings – Yield Line
Solid White Triangles



(18) Transverse Markings
Single Solid 12" White Stripe



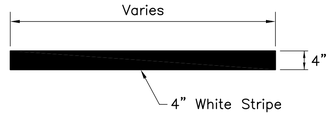
(19) Transverse Markings
Single Solid 12" Yellow Stripe



(20) Transverse Markings – Turn Arrows

(21) Transverse Markings – Text
ONLY

(22) Transverse Markings
Single Solid 4" White Stripe



Rev	By	Date	Description
.			

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: B Wardell
Drawn: J Derosier
Checked: E Liberman
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

TYPICAL PAVEMENT MARKING LEGEND AND DETAILS

SHEET 2 OF 2

Contract No.: SV–245
CADD File: SC4–C01–TG003
Drawing No.: TG003 Rev.
Scale: NTS
Page No. 38 of 180

2009–09–03 3:49 PM K:\CADD\03 Civil\Segment C\Sheet Files\SC4 Pearl Highlands Station\SC4–C01–TG002–003.dwg

TRAFFIC SIGNAL NOTES

1. All traffic signal controller equipment shall be completely wired in the cabinet and shall control the traffic signals as called for in the plans.
2. Signal indications during clearance interval:
   A. If a signal is G or ~~G~~ and will remain G or ~~G~~ during the next phase, it shall be G or ~~G~~ during the clearance interval.
   B. If a signal is G or ~~G~~ and will become R or extinguished during the next phase, it shall be Y or ~~Y~~ during the clearance interval.
   C. If a signal is R and will remain R or becomes G during the next phase, it shall remain R during the clearance interval.
3. The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the plans. Cost for the loop amplifier shall be incidental to the installation of the loop detector.
4. A solid #8 bare copper wire shall be pulled with the traffic control cable for equipment ground. Cost shall be incidental to the installation of the control cable.
5. Conduits and pullbox locations as shown on the plans are schematic. They may be modified by the contractor with the approval of the engineer.
6. The Contractor shall install the controller and cabinet in the indicated location.
7. All work for the installation or modification of the traffic signal system shall conform to the latest revisions of the "Hawaii Standard Specifications for Road and Bridge Construction" (2005) and the "Standard Plans" (2008) of the Department of Transportation, Highways Division and as shown on these drawings.
8. All splicing shall be done in the pullboxes.
9. Furnishing and installing the conduit stubouts (pullboxes to edge of pavement) will not be paid for separately but shall be considered incidental to the various contract items.
10. The concrete jacket for the conduit by–pass detail shown on HDOT standard plan TE–36 shall not be paid for separately but considered incidental to the various traffic signal contract items.
11. All cable and elements for grounding shall be new.
12. Cables between signal faces, pedestrian heads, and EVP detectors and the nearest pullbox are not called out on the plan, but shall be furnished and installed in sufficient numbers and lengths as required. Cost shall be incidental to various traffic signal contract items.
13. Conduits between the traffic signal standard and the pullbox shall be in sufficient number as required. Cost shall be incidental to the installation of the traffic signal standard foundation.
14. Unless otherwise specified, all conduits shall be concrete encased PVC schedule 80.
15. The Contractor shall notify the Traffic Signal and Technology Division, Department of Transportation Services, three (3) working days prior to commencing work on the traffic signal system (Phone: 1–808–768–8388).
16. While modifying the existing traffic signal systems, the Contractor shall keep the existing system operational until the new traffic signal system can be put into service.
17. The Contractor shall salvage all existing heads, standards, and cables not used in the new system once the new system has been put into service. Cost shall be incidental to the various contract items.
18. All traffic signal hardware removed from the intersection shall be stockpiled and delivered to a location determined by the Engineer.
19. With the exception of the abandoned empty conduits, the Contractor shall remove all the abandoned underground traffic signal facilities resulted from the construction of this Project once the new system has been put into service.

CONSTRUCTION NOTES

1. Locations of existing underground structures and utilities such as pipelines, conduits, cables, etc., shown on plans are approximate only. It is not the intent of these plans to show the exact location of all underground utilities and structures. It is the responsibility of the Contractor to verify the locations of all existing utilities with the respective owners. Existing utilities damaged by the Contractor shall be repaired by the Contractor at his own cost.
2. The Contractor shall verify and check all dimensions and details shown on the drawings prior to the start of construction. Any discrepancy shall be immediately brought to the attention of the engineer for clarification.
3. The Contractor shall notify all agencies to verify, tone, and locate their existing utilities within the project area prior to excavating. The Contractor shall coordinate all work.
4. The locations of the new traffic signal standards, traffic signal standards with mast–arm, pedestrian push buttons, traffic controller, pullboxes, conduits and loop detectors shall be staked out in the field by the Contractor and approval of the locations shall be obtained from the engineer prior to construction and installation.
5. All traffic signal work shall conform to the requirements of the "Manual on Uniform Traffic Control Devices for Streets and Highways, 2003 Edition", Federal Highway Administration (2003) as amended.
6. Maintenance of traffic through the construction area shall be in accordance with Part VI of the "Manual on Uniform Traffic Control Devices for Streets and Highways, 2003 Edition", Federal Highway Administration (2003) as amended and as specified in the special provisions. The Contractor shall furnish and maintain adequate barricades, blinkers, construction signs, etc., for the safety of the motoring public.
7. Traffic signal items shall conform to State of Hawaii, Department of Transportation, Highways Division, "Standard Plans" (2008) as amended. Refer to standard plans TE–32, TE–33, TE–33A.1, TE–33A.2, TE–34, TE–36, TE–37, TE–37A, TE–37B, TE–37C, TE–37D, TE–37E, TE–37F, TE–37G, TE–37H, TE–37J, TE–38, TE–38A.1, and TE–38A.2.
8. At the end of each day's work, the Contractor shall remove all equipment and other obstruction to permit free and safe passage of public traffic.

ABBREVIATIONS

BL	Baseline
CCTV	Closed–Circuit Television
ea	Each
EB	Eastbound
EVP	Emergency Vehicle Preemtion
FO	Fiber Optic
HDOT	Hawaii Department of Transportaiton
Hwy	Highway
LED	Light Emitting Diode
NTS	Not to Scale
OH	Overhead
PL	Place
PVC	Polyvinyl Chloride
PVH	Programmed Visibility Head
Rd	Road
ROW	Right–of–Way
St	Street
Typ	Typical
WB	Westbound

SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		Existing Traffic signal head
		Standard traffic and pedestrian count down signal heads mounted on Type I Signal Standard, height=10'
		Pedestrian count down signal head mounted on Type I Signal Standard, height=8'
		12" R Y ↑ Traffic signal head Programmed visibility head (PVH)
		12" R Y ↑ Traffic signal head
		12" R Y G Traffic signal head
		Pedestrian head with count down signal head
		12" R Y ← Traffic signal head
		12" R Y ← Dual–LED traffic signal head
		12" R Y ← Y/G Traffic signal head
		12" ← ← ← Traffic signal head, programmed visibility head (PVH)
		Traffic signal heads mounted on Type II Signal Standard 40' Mast Arm : 12' between heads
		Traffic signal heads mounted on Type III Signal Standard 40' Mast Arm : 10' between heads
		Closed Circuit TV (CCTV) Camera
		Emergency Vehicle Preemption (EVP) Detector
		Existing pullbox
		New Pullbox
		Replace existing pullbox with New Pullbox
		New Model 170 controller on new base
		New 332 CCTV cabinet on new base
		Loop detector
		Meter pedestal
		Traffic signal standard
		Traffic signal conduits (underground)
		Traffic signal conduits/support wire (overhead)
		Existing traffic signal facilities to be removed

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D Crosariol
Drawn: R Fukuda
Checked: K Niiya
Approved: K Niiya
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: AUSTIN, TSUTSUMI & ASSOC., INC.
ENGINEERS, SURVEYORS • HONOLULU, HAWAII

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PEARL HIGHLANDS STATION

GENERAL TRAFFIC SIGNAL NOTES, SYMBOLS, AND ABBREVIATIONS

Contract No.: SV–245
CADD File: SC4–C01–TG006
Drawing No: TG006 Rev.
Scale: NTS
Page No. 41 of 180

2009–09–04 2:59 PM Z:\2007\07–099\Pearl Highlands Center\DWG\SC4–C01–TG006.dwg

NOTES:

1. For striping notes and legend, see Dwg TG001.
2. For typical pavement marking legend and details, see Dwgs TG002 and TG003.
3. The selected designer is responsible for the signage layout and details which are not included on these plans.

40' 0 40'

KEY PLAN

Rev	By	Date	Description
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PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: B Wardell
Drawn: J Derosier
Checked: E Liberman
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

SIGNING AND STRIPING PLAN

SHEET 1 OF 3

Contract No.: SV–245
CADD File: SC4–C02–TR001
Drawing No.: TR001 Rev.
Scale: 1"=40'
Page No. 42 of 180

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Kamehameha Highway (SR-99)

ROW

Waiawa Stream

Waiahona Street

Parking Structure

Future Bus Ramp From H–2 Inbound (By Others)

Future Auto Ramp From H–2 Inbound (By Others)

Elevated Access Ramp From H2 (By Others)

Surveyed–Ordinary High Water Mark

Guideway Column & Structure by WOFH D–B (Typ)

WB Track

EB Track

Chain–Link–Fence H=8'

Match Line See Dwg No. TR004

NOTES:

1. For striping notes and legend, see Dwg TG001.
2. For typical pavement marking legend and details, see Dwgs TG002 and TG003.
3. The selected designer is responsible for the signage layout and details which are not included on these plans.

40' 0 40'

KEY PLAN

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: B Wardell
Drawn: J Derosier
Checked: E Liberman
Approved: M Hall
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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Subconsultant:

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PEARL HIGHLANDS STATION

SIGNING AND STRIPING PLAN

SHEET 2 OF 3

Contract No.: SV–245
CADD File: SC4–C02–TR003
Drawing No.: TR003 Rev.
Scale: 1"=40'
Page No.: 43 of 180

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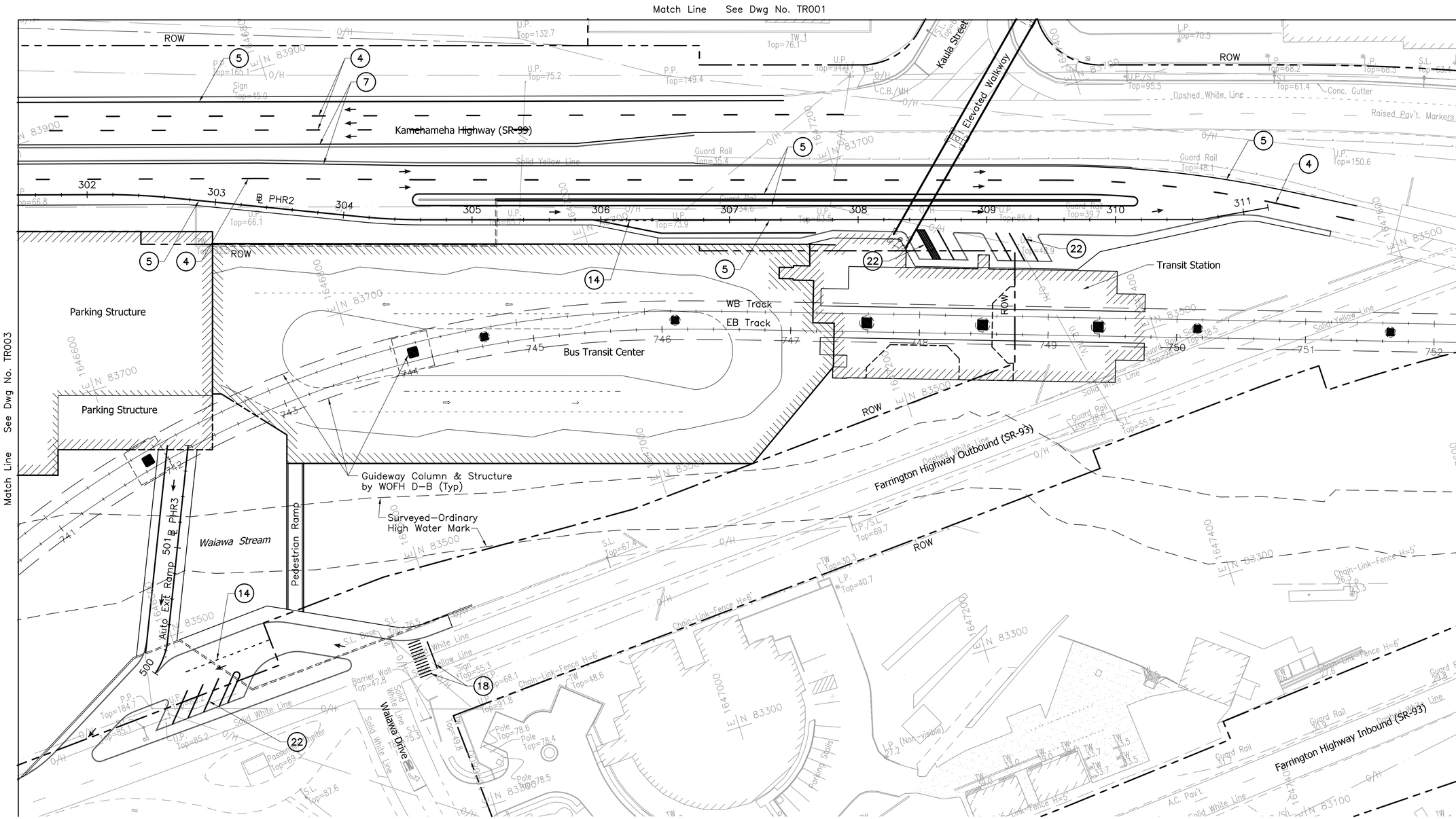
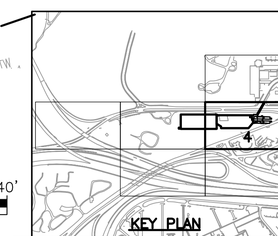


NOTES:

1. For striping notes and legend, see Dwg TG001.
2. For typical pavement marking legend and details, see Dwgs TG002 and TG003.
3. The selected designer is responsible for the signage layout and details which are not included on these plans.

40' 0 40'



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: B Wardell
Drawn: J Derosier
Checked: E Liberman
Approved: M Hall
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
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Prime Consultant: PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

SIGNING AND STRIPING PLAN

SHEET 3 OF 3

Contract No.: SV-245
CADD File: SC4-C02-TR004
Drawing No: TR004
Rev.
Scale: 1"=40'
Page No. 44 of 180

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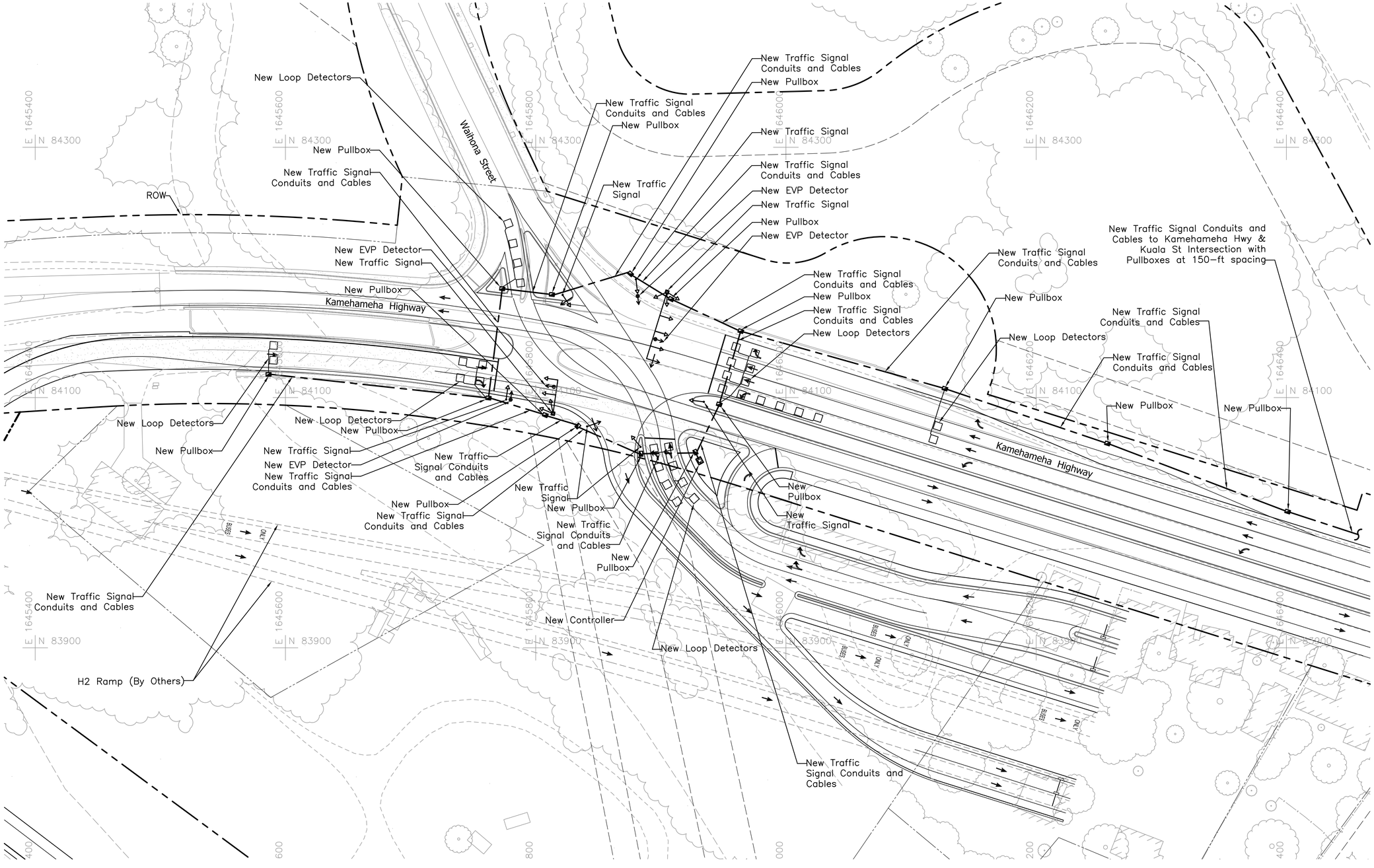

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NOTE:

See Dwg No. TG006 for General Notes, Symbols and Abbreviations.

40' 0' 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: E Takamine
Drawn: R Fukuda
Checked: K Niiya
Approved: K Niiya
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: AUSTIN, TSUTSUMI & ASSOC., INC.
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PEARL HIGHLANDS STATION

TRAFFIC SIGNAL PLAN KAMEHAMEHA HWY AT WAIHONA ST

Contract No.: SV-245
CADD File: SC4-C04-TR201
Drawing No: TR201
Rev.
Scale: 1"=40'
Page No. 45 of 180

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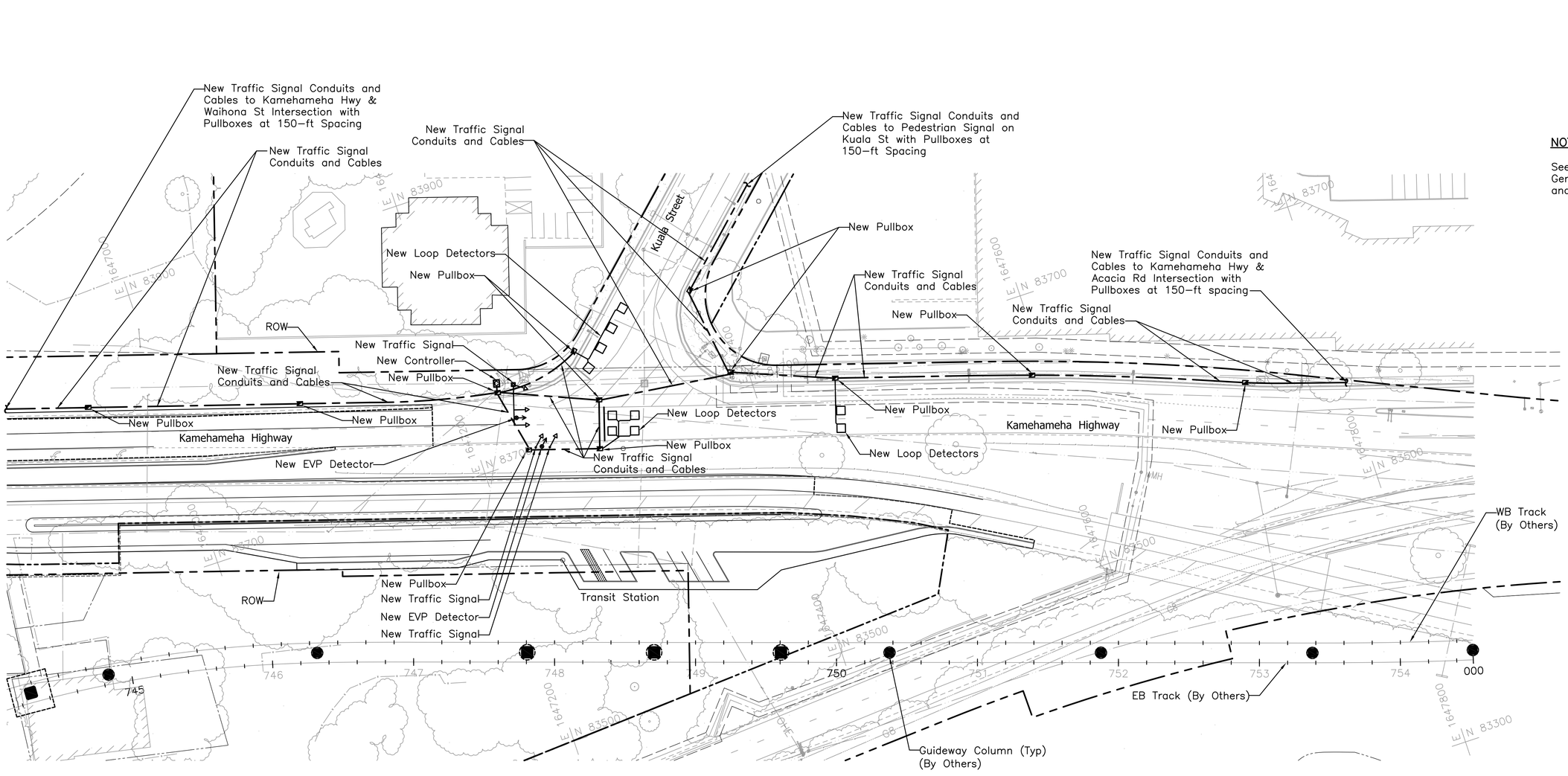

NOTE:

See Dwg No. TG006 for General Notes, Symbols and Abbreviations.

40' 0' 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D Crosariol
Drawn: R Fukuda
Checked: K Niiya
Approved: K Niiya
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

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PEARL HIGHLANDS STATION

TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT KUALA ST

Contract No.: SV-245
CADD File: SC4-C04-TR202
Drawing No: TR202
Rev.
Scale: 1"=40'
Page No. 46 of 180

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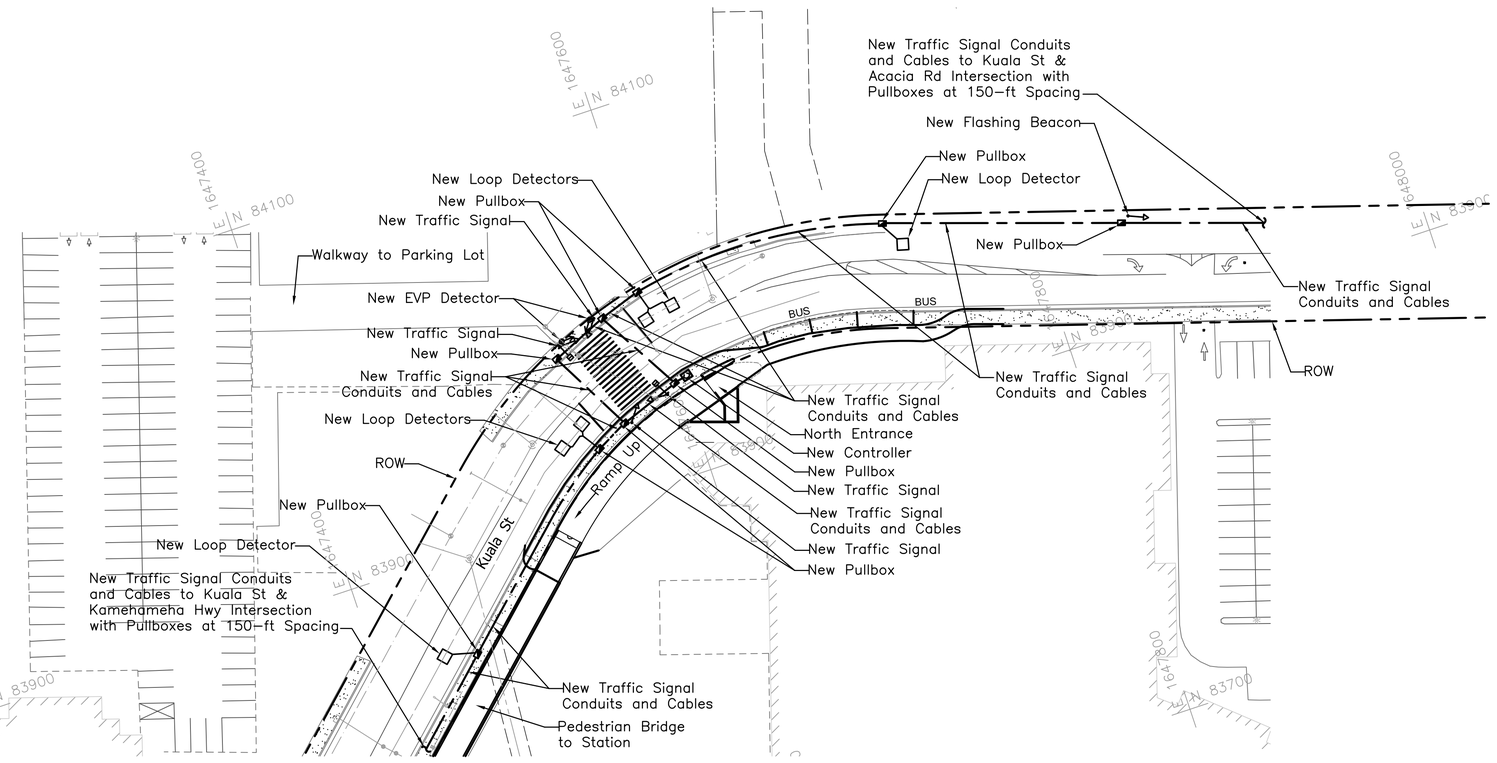

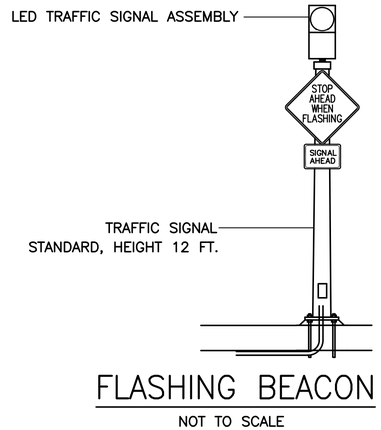

FLASHING BEACON

NOT TO SCALE

N

NOTE:

See Dwg No. TG006 for General Notes, Symbols and Abbreviations.

40' 0' 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D Crosariol
Drawn: R Fukuda
Checked: K Niiya
Approved: K Niiya
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

TRAFFIC SIGNAL PLAN KUALA ST PEDESTRIAN CROSSING

Contract No.: SV–245
CADD File: SC4–C04–TR203
Drawing No: TR203 Rev.
Scale: 1"=40'
Page No. 47 of 180

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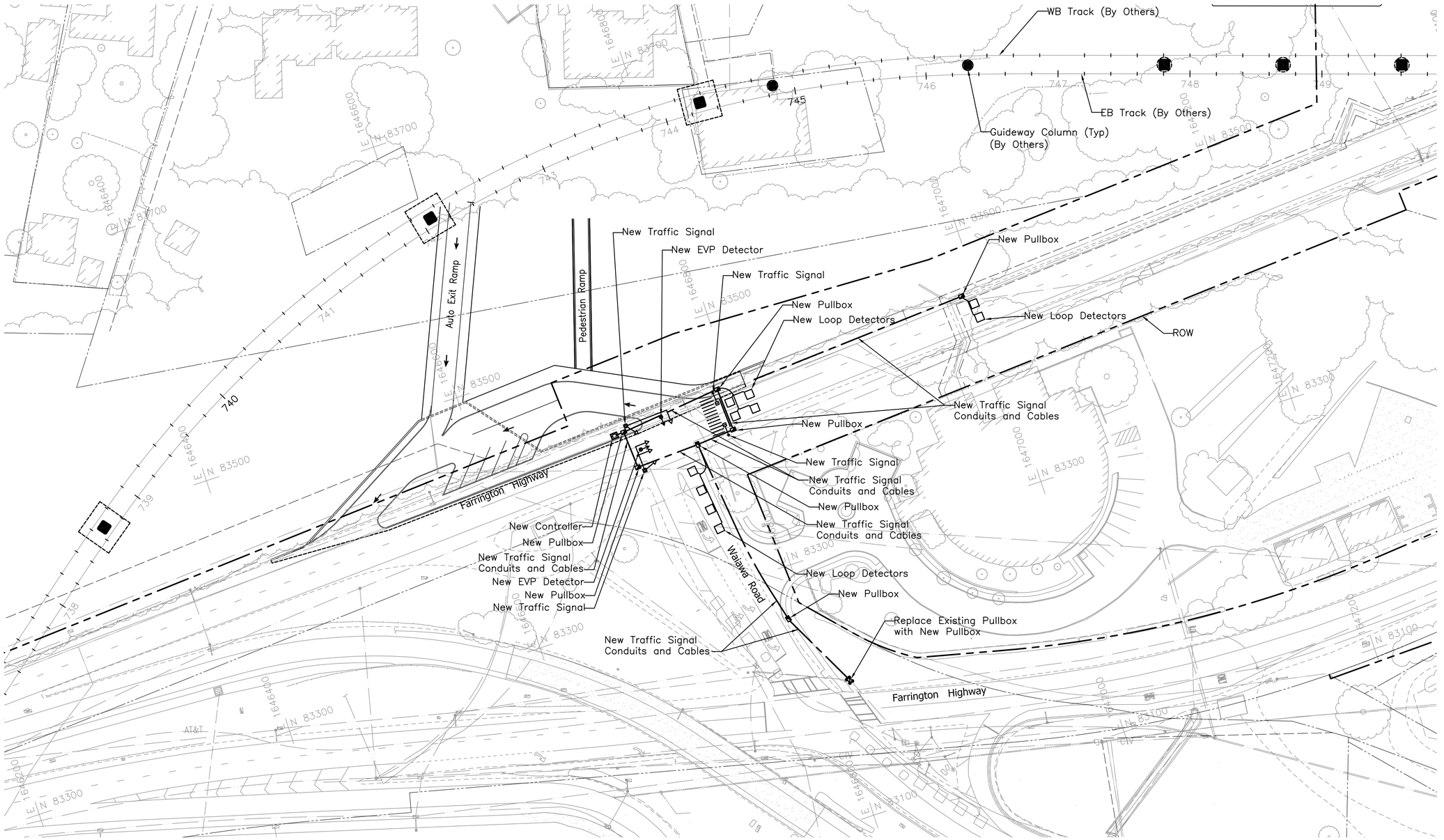

N

NOTE:

See Dwg No. TG006 for General Notes, Symbols and Abbreviations.

40' 0' 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D Crosariol
Drawn: R Fukuda
Checked: K Niiya
Approved: K Niiya
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

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PEARL HIGHLANDS STATION

TRAFFIC SIGNAL PLAN FARRINGTON HWY AT WAIAWA DR

Contract No.: SV-245
CADD File: SC4-C04-TR204
Drawing No: TR204 Rev.
Scale: 1"=40'
Page No. 48 of 180

2009-09-04 2:57 PM Z:\2007\07-099\Pearl Highlands Center\DWG\SC4-C04-TR204.dwg

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: G Kurashima
Drawn: ICX
Checked: G Fromm
Approved: G Fromm
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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Subconsultant: icx transportation
1003 Bishop Street, Suite 720 – Honolulu, HI 96813

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PEARL HIGHLANDS STATION

INTELLIGENT TRANSPORTATION SYSTEMS DYNAMIC MESSAGE SIGNS

Contract No.: SV-245
CADD File: SC4-C04-TR801
Drawing No.: TR801 Rev.
Scale: 1" = 500'
Page No.: 49 of 180

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UTILITIES SYMBOLS

- Exist AT&T Line
- Exist Cable Television
- Exist Cable Television, Overhead
- Exist Communication Fiber Optic
- Exist Drain Line (Size in Inches)
- Exist Electrical Line, Overhead
- Exist Electrical Line
- Exist Fire Alarm
- Exist Fuel or Oil Line (Size in Inches)
- Exist Force Main (Size in Inches)
- Exist Gas Line (Size in Inches)
- Exist Non–Potable Water Line (Size in Inches)
- Exist Sandwich Isle Communications Line
- Exist Sewer Line (Size in Inches)
- Exist Signal Corps Line
- Exist Street Light Conduit
- Exist Telephone Line, Overhead
- Exist Telephone Line
- Exist Traffic Signal Conduit
- Exist Water Line (Size in Inches)

- Exist Air Relief Valve
- Exist AT&T Box
- Exist AT&T Manhole
- Exist Backflow Preventor
- Exist Utility Box
- Exist Catch Basin
- Exist Catch Basin
- Exist Cable TV Box
- Exist Clean Out
- Exist Drain Inlet
- Exist Drain Manhole
- Exist Dry Standpipe
- Exist Electrical Box
- Exist Electrical Manhole
- Exist Electrical Transformer
- Exist Fire Alarm Box
- Exist Fire Hydrant
- Exist Gas Manhole
- Exist Gas Valve
- Exist Guy Wire
- Exist Irrigation Control Valve Box
- Exist Irrigation Control Valve
- Exist Light Pole
- Exist Manhole
- Exist Street Monument
- Exist Pole (EP, U.P.)
- Exist Pedestrian Street Light

- Exist Traffic Sensor
- Exist Street Light
- Exist Street Light Box
- Exist Sewer Manhole
- Exist Telephone Box
- Exist Telephone Manhole
- Exist Traffic/Pedestrian Street Light
- Exist Traffic Signal Box
- Exist Traffic Street Light
- Exist Water Meter
- Exist Water Manhole
- Exist Water Valve

- Prop Drain Line (Size in Inches)
- Prop Fuel or Oil Line (Size in Inches)
- Prop Gas Line (Size in Inches)
- Prop Non–Potable Water Line (Size in Inches)
- Prop Sewer Line (Size in Inches)
- Prop Water Line (Size in Inches)

- Prop Air Relief Valve
- Prop Backflow Preventor
- Prop Catch Basin
- Prop Catch Basin
- Prop Clean Out
- Prop Drain Inlet
- Prop Drain Manhole
- Prop Swale
- Prop Fire Hydrant
- Prop Gas Manhole
- Prop Gas Valve
- Prop Sewer Manhole
- Prop Water Meter
- Prop Water Manhole
- Prop Water Valve
- Cut and Plug
- Abandon in Place
- Demolish/Remove

UTILITIES ABBREVIATIONS

&	And
Abnd	Abandoned
AC	Asphalt Concrete
AF	Air Force
Approx	Approximate
ARV	Air Relief Valve
Ave	Avenue
℄	Baseline
BFP	Backflow Preventor
BGGV	Bevel–geared gate valve
Blvd	Boulevard
BWS	Board of Water Supply
℄	Centerline
C&C	City and County
CB	Catch Basin
CBMH	Catch Basin Manhole
CO	Cleanout
Comm	Communication
Conc	Concrete
CTV	Cable TV
D	Drain
DI	Drainage Inlet
DMH	Drainage Manhole
DS	Down Spout
Dwg	Drawing
E	Electric, Electrical
EB	Electrical Box
EH	Electrical Handhole
Elec	Electric, Electrical
EP	Electric Pole
EMH	Electrical Manhole
EV	Electrical Vault
Exist	Existing
F	Fuel
FA	Fire Alarm
FAB	Fire Alarm Box
FH	Fire Hydrant, Farrington Highway
FM	Force Main
FMH	Fuel Manhole
FOC	Fiber Optic Cable
FSA	Fire Safety Alarm
Fwy	Freeway
G	Gas
GM	Gas Meter
GMH	Gas Manhole
GV	Gas Valve, Gate Valve
GW	Guy Wire
HECO	Hawaiian Electric Company
HH	Handhole
HITS	Hawaii Information Transfer System
HP	High Pressure
HT	Hawaiian Telcom
HVP	High Voltage Power
HW	Headwall
Hwy	Highway
ICB	Irrigation Control Box
ICV	Irrigation Control Valve
Irr	Irrigation
kV	Kilovolt
Lat	Lateral
Ln	Lane
LP	Light Pole
Lt	Light
MH	Manhole
MHP	Manhole (Positive)
MHN	Manhole (Negative)
Misc	Miscellaneous
MTCO	Mutual Telephone Company
MW	Monitoring Well
NPW	Non–Potable Water
N/A	Not Applicable
NS	North–South Road
OCTv	Overhead Cable Television
OH	Overhead
OHE	Overhead Electrical
OT	Overhead Telephone
PB	Pullbox
Pkwy	Parkway
PPB	Pedestrian Push Button
PI	Place
PM	Petroleum Marker
PP	Power Pole
Prop	Proposed
PVC	Polyvinyl Chloride
Pwr	Power
RCP	Reinforced Concrete Pipe
Rd	Road
ROW	Right–of–Way
S	Sewer
SC	Signal Corps Line
SDMH	Storm Drain Manhole
SIC	Sandwich Isle Communications
Sig	Signal
SL	Street Light
SL	Sewer Line
SLB	Street Light Box
SLC	Street Light Conduit
SMH	Sewer Manhole
St	Street
St Mon	Street Monument
T	Top
TBD	To Be Determined
TCB	Traffic Control Box
Tel	Telephone
Temp	Temporary
TGC	The Gas Company
TL	Traffic Light
TMH	Telephone Manhole
TP	Telephone Pole
TPOL	Traffic Signal Pole
TRB	Traffic Box
TS	Top Stem
TSB	Traffic Signal Box
TSC	Traffic Signal Conduit
TSL	Traffic Signal
TV	Television
Typ.	Typical
UB	Utility Box
UD	Underdrain
UMH	Utility Manhole
UP	Utility Pole
USN	United States Navy
USAF	United States Air Force
Util	Utility
W	Water
WL	Water Line
WM	Water Meter
WMH	Water Manhole
Wtr	Water
WV	Water Valve
WVB	Water Valve Box
WVMH	Water Valve Manhole

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: D Toba
Checked: H Andrews
Approved: J Yamamoto
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: R. M. TOWILL CORPORATION
Planning – Engineering – Environmental Services – Photogrammetry – Surveying – Construction Management
808 842 1133 2024 North King Street Suite 200 Honolulu Hawaii 96819–3470

For reduced prints, original page size in inches: 0 1 2 3 4

PEARL HIGHLANDS STATION

GENERAL UTILITIES SYMBOLS AND ABBREVIATIONS

Contract No.: SV–245
CADD File: SC4–D01–UG001
Drawing No: UG001 Rev. A
Scale: None
Page No. 50 of 180

GENERAL UTILITIES NOTES

1. All construction work shall be done in accordance with the rules and regulations of the governmental agency having jurisdiction over the work. The Contractor shall notify the appropriate governmental agency having jurisdiction over the work to arrange for inspectional services.

2. The Contractor shall verify all dimensions and details shown on the drawings prior to the start of construction. Any discrepancy shall be immediately brought to the attention of the City.

3. Obtain all standards and drawings related to this project from the Utility Companies. Verify that the Utility Company's Project Drawings are the same as the Contract Drawings. Notify the City of any differences between them. If differences exist, obtain a resolution prior to proceeding with the work which is affected.

4. The underground pipes, cables, manholes, handholes, service boxes, or ductlines known to exist from search of records are indicated on the plans. The Contractor shall verify the locations and depths of existing utility lines and exercise proper care when excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines. The Contractor shall verify the operational status of all existing utilities to be removed or abandoned in place. Any discrepancy shall be brought to the attention of the City.

5. The Contractor shall exercise care when performing his work and shall be held liable for any damages incurred to the existing facilities, utilities and other features, whether shown or not on plans, as a result of his operations. All damaged portions shall be replaced in accordance with the requirements of the affected owner or user at the Contractor's expense.

6. All existing utilities to remain in use, whether or not shown on the plans, shall be protected at all times by the Contractor unless specified on the plans to be abandoned. Any damage to the existing utilities shall be repaired and paid for by the Contractor.

7. Existing utilities shall remain in service and in place at all times. If relocation of the existing utilities is required for the Contractor's convenience, interruption of service shall be kept to a minimum and shall be done at the Contractor's expense, and only with the approval of the City and the affected utility company.

8. Confined Space
For entry by HDOT or City personnel, including inspectors, into a permit required confined space as defined in 29 CFR Part 1910.146(b), the Contractor shall be responsible for providing:

   A. All safety equipment required by the confined space regulations applicable to all parties other than the construction industry, to include, but not limited to, the following:

      a. Full body harnesses for up to two personnel.
      b. Lifeline and associated clips.
      c. Ingress/egress and fall protection equipment.
      d. Two–way radios (walkie–talkies) if out of line–of–sight.
      e. Emergency (escape) respirator (10 minute duration).
      f. Cellular telephone to call for emergency assistance.
      g. Continuous gas detector (calibrated) to measure oxygen, hydrogen sulfide, carbon monoxide and flammables (capable of monitoring at a distance at least 20–feet away).
      h. Personal multi–gas detector to be carried by inspector.

   B. Continuous forced air ventilation adequate to provide safe entry conditions.
   C. One attendant/rescue personnel topside (two, if conditions warrant it).

9. Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources–Historic Preservation Division (1–808–692–8015), and the Engineer. In addition, for non–City projects, the Contractor shall inform the Civil Engineering Branch, Department of Planning and Permitting (1–808–768–8084); and for City projects, notify the responsible City agency.

10. The existing improvements on the premises and in adjacent areas that are not to be removed shall be preserved and protected. Any and all damages resulting from the Contractor's construction operations shall be replaced and repaired to original condition, to the satisfaction of the owner.

11. The Contractor shall provide an adequate and safe non–skid bridging material, including shoring, over trenches in pavement areas. The bridging shall be able to support all types of vehicular traffic.

12. Unless otherwise noted, no trench shall be opened more than 300 feet in advance of installed and tested pipeline and/or ductline.

13. The Contractor shall not cause falling rocks, oil or debris in any form to fall, slide or flow onto adjoining properties, streets or natural water–courses. Should such violation occur, the Contractor shall immediately make all remedial action necessary.

14. Adequate provisions shall be made to prevent surface waters from damaging the cut face of excavated trenches. Furthermore, adequate provisions shall be made to prevent sediment–laden runoff from leaving the site.

15. The Contractor shall be responsible for conformance with the applicable provisions of the Water Quality and Water Pollution Control Standards contained in the Hawaii Administrative Rules, Chapter 11–54, "Water Quality Standards" and Chapter 11–55, "Water Pollution Control". As well as Chapter 14 of the Revised Ordinances of Honolulu, as amended, Best Management Practices shall be employed at all times during construction.

16. The Contractor shall be responsible for any sewage spills caused during construction. The Contractor shall notify the State Department of Health and utilize appropriate sampling and analyzing procedures.

17. The Contractor shall coordinate, if applicable, construction of electrical, telephone, cable television, water, sewer, and gas line relocation work with Hawaiian Electric Company, Hawaiian TelCom, Oceanic Time Warner Cable, Board of Water Supply, Department of Environmental Services, and The Gas Co., respectively. All coordination shall be considered incidental to utility relocation work.

18. Where necessary, reconstruction of sidewalk, gutter and driveway area shall conform to the standard details of the governmental agency having jurisdiction over the work.

19. The Contractor shall coordinate with the land owners and users as needed to carry out the work.

20. Origin of Coordinates: Hawaii State Plane Coordinate Grid System, Zone III with the North American Datum of 83 High Accuracy Reference Network (NAD83 HARN).

21. Elevations shown on these plans are referenced to Mean Sea Level (MSL).

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

1. The Contractor shall obtain and comply with the National Pollutant Discharge Elimination System (NPDES) requirements for Oahu District permit projects. This is available at the Oahu District Office at 727 Kakoi Street (ph. 1–808–831–6793). Due to potential cost impacts, the Contractor needs to be aware of these requirements.

2. The Contractor shall complete and submit a Contractor's Certification of NPDES Compliance, including completion of the Best Management Practice (BMP) Checklist and submittal of a written BMP plan and drawings, prior to issuance of the permit to perform work upon State Highways.

3. The Contractor shall follow the guidelines in the City and County of Honolulu's "Best Management Practices Manual for Construction Sites in Honolulu", in developing, installing and maintaining the Best Management Practices (BMPs) for the project.

4. The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules for Soil Erosion Standards and Guidelines" for the project.

STATE OF HAWAII UTILITY NOTIFICATION CENTER

Prior to excavation, the Contractor is required by Section 269E of Hawaii Revised Statutes, to contact the Hawaii One Call Center at 1–866–423–7287.

PUBLIC HEALTH, SAFETY & CONVENIENCE NOTES

1. The Contractor shall observe and comply with all Federal, State and local laws required for the protection of public health and safety and environmental quality.

2. The Contractor, at his own expense, shall keep the project and its surrounding areas free from dust nuisance. The work shall be in conformance with the Air Pollution Standards of the State Department of Health. The State may require supplementary measures as necessary.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: D Toba
Checked: H Andrews
Approved: J Yamamoto
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: R. M. TOWILL CORPORATION
Planning – Engineering – Environmental Services – Photogrammetry – Surveying – Construction Management
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For reduced prints, original page size in inches: 0 1 2 3 4

PEARL HIGHLANDS STATION

GENERAL UTILITIES NOTES

SHEET 1 OF 2

Contract No.: SV–245
CADD File: SC4–D01–UG002
Drawing No.: UG002 Rev. A
Scale: None
Page No. 51 of 180

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT–OF–WAY

1. The Contractor shall obtain a permit to perform work upon State Highways from the Oahu District Engineer, State Highways, at 727 Kakoi Street, prior to commencement of work within the State's Highway Right–of–Way.

2. All construction and restoration work within the State's right–of–way, including the legal relations and responsibility to the public, shall be done in accordance with all applicable sections of the current "Standard Specifications for Road, Bridge, and Public Works Construction" and the "Specifications for Installation of Miscellaneous Improvements within State Highways", of the State Highways Division, unless otherwise specified by the Contract Plans and Specifications.

3. Work may be performed only between the hours of 8:30 a.m. and 3:00 p.m., Monday through Friday, except holidays, unless otherwise permitted by the District Engineer.

   During work hours, only one lane of traffic shall be closed, unless otherwise approved in writing by the District Engineer.

   At certain locations, no lane closure will be allowed during the "Back to School Jam", Thanksgiving weekend, Christmas/New Year period and at other times as directed by the Highways Division.

4. The Contractor shall provide, install, and maintain all necessary signs, lights, flares, barricades, markers, cones and other protective facilities, and shall take all necessary precautions for the protection, convenience, and safety of public traffic. All such protective facilities and precautions to be taken shall conform with the "Administrative Rules of Hawaii Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways" adopted by the Director of Transportation, and the current U.S. Federal Highways Administration "Manual on Uniform Traffic Control Devices, Part VI–Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility and Incident Management Operations".

   Lane closures shall conform to the Traffic Control Plan incorporated into these construction plans and must be approved by the Division prior to the issuance of the permit.

5. The minimum pavement structure shall consist of:

   a. Residential driveways, on minor Highways:

      1) 2–1/2" asphalt concrete (Mix IV), 6" aggregate base course and 12" subbase, or 2–1/2" asphalt concrete and 6" Glassphalt concrete base course.

      2) 6" of Class "A" concrete reinforced with 6" x 6" – W2.9 x W2.9 wire mesh on 12" aggregate subbase, if deemed necessary by the Engineer.

   b. Commercial driveways and sideroads on minor Highways:

      1) 2–1/2" asphalt concrete (Mix IV), 6" Glassphalt concrete base course and 12" subbase, or 4" asphalt concrete (Mix IV) and 8" Glassphalt concrete base course.

      2) 8" of Class "A" concrete reinforced with 6" x 6" – W2.9 x W2.9 wire mesh on 12" aggregate subbase, if deemed necessary by the Engineer.

   c. Channelized intersections on major Highways:

      1) 4" asphalt concrete (Mix IV), 8" Glassphalt concrete base course and 12" aggregate subbase, or 4" asphalt concrete (Mix IV) and 12" Glassphalt concrete base course.

6. No material and/or equipment shall be stockpiled or otherwise stored within the highway right–of–way except at locations designated in writing and approved by the Engineer. If use of a location is approved by the Engineer, a permit to use the property within the highway right–of–way shall be obtained from the State Highways.

7. Compaction tests shall be taken in accordance with the Specifications for installation of miscellaneous improvements within State Highways, as follows:

   a. Subbase: one (1) compaction test per lift per 200 lineal feet of roadway.

   b. Base Course: one (1) compaction test per lift per 200 lineal feet of roadway.

   c. One (1) compaction test per lift per 300 lineal feet of trench.

   d. A copy of the test result shall be submitted to the District Engineer.

8. The Contractor shall take a profile along the centerline of the proposed utility trench both before commencing trench excavation work and after trench has been repaved. Profiles shall be submitted to the District Engineer and shall be used to verify that the roadway surface has been restored to its original condition or smoother.

9. The distance from the paved surface to the testing edge of a ten–foot long straight edge between two points shall not exceed 3/16 inch.

10. Approval of permit construction plans shall be valid for a period of one (1) year from the date of notification of approval to the applicant. In the event that construction does not commence within this one year period, the applicant will be required to resubmit the construction plans for the Division's review and approval.

11. All regulatory, guide, and construction signs and barricades shall have a high–intensity reflective background.

12. The Contractor shall inform the State Highway's Permit Office (1–808–831–8712) at least two (2) days prior to closing any lanes.

13. Driveways shall be kept open unless the owners of the properties using these Right–of–Ways are otherwise provided for satisfactorily.

14. Where pedestrian walkways exist they shall be maintained in a safe and passable condition, or other facilities for pedestrians shall be provided. Passages between walkways at intersections shall likewise be provided. All walkways shall conform to ADA requirements.

15. The Contractor shall reference to the satisfaction of the District Engineer, all existing traffic signs, posts and pavement markings prior to the commencement of construction. The Contractor shall replace or repair all traffic signs, posts and pavement markings disturbed by his activities, at his expense, unless directed otherwise by the District Engineer or his representative.

16. The Contractor shall exercise care when performing work in or adjacent to the State Highway Right–of–Way. All damages shall be immediately reported to the respective Utility Companies, and/or City or State Agencies. The repair work shall be done at the Contractor's expense, to the satisfaction of the District Engineer or other affected owner or user.

17. The Contractor shall notify the State Highways' Highway Lighting and Traffic Signal Supervisor, (1–808–837–5056) three (3) days prior to commencing work.

18. The Contractor shall notify the City Department of Transportation Services, Traffic Signal Engineer (1–808–523–4589) three (3) days prior to any signalized intersection work.

19. Traffic signals shall be kept operational during construction. Temporary operational microwave or other approved detection devices shall be installed three (3) working days prior to any signalized intersection excavation work. All work shall be done in accordance to the requirements of the Department of Transportation Services, City and County of Honolulu, and paid for by the Contractor.

20. The Contractor shall notify Oahu Transit Services, Inc. (OTS) Ed Sniffen at 1–808–848–4571 or Lowell Tom at 1–808–848–4578, two weeks prior to commencing any work. The Contractor shall inform OTS of the location and scope of work, proposed closure of any street or traffic lanes, and the need to relocate any bus stop.

21. The permit to perform work upon State Highways may be revoked because of default in any of the following, but not limited to conditions:

    a. Work performed before or after permitted hours.

    b. Failure to maintain roadway surfaces in a smooth and safe condition.

    c. Failure to clean up construction debris generated from project work.

    d. Failure to provide proper traffic control.

    e. Failure to replace damaged pavement markings and signs.

22. The Contractor shall notify the State Highways Permit Office (1–808–831–8712) at least two days prior to performing any trench restoration work. This work shall include any backfilling and compacting of trench materials; any placing and compacting of base course material; and any paving operations. Any trench restoration work performed by the Contractor that is not witnessed by a State Representative will be required to be removed and restored with a State Representative present. All restoration work will be at the Contractor's expense.

23. Temporary cold mix trench patches will be permitted in any given area for a maximum duration of two weeks, and shall be a minimum of 2 inches thick. All temporary patches shall be placed over properly placed and compacted backfill and base course layers. Contractor shall be responsible for maintaining all temporary patches and to make repairs to unsatisfactory patches within 24 hours.

24. The Contractor will make every effort to minimize the use and the duration of use of steel plates. All steel plates shall have a non–skid surface. The state may require the backfilling and patches of trenches due to the excessive usage of steel plates.

25. Plastic Marking Tape. Provide plastic marking tape that is acid and alkali resistant polyethylene film 6 inches wide with minimum thickness of 0.004 inch. Provide tape with minimum strength of 1750 psi lengthwise and 1500 psi crosswise. Manufacture tape with integral wires, soil backing or other means to enable detection by a metal detector when the tape is buried up to 3 feet deep. Manufacture tape specifically for marking and locating underground utilities. Provide the metallic core of the tape encased in a protective jacket or provided with other means to protect it from corrosion. Conform to the following tape color and bear a continuous printed inscription describing the specific utility.

    Red: Electric

    Yellow: Gas, Oil, Dangerous Materials

    Orange: Telephone, Telegraph, Television, Police and Fire Communications

    Blue: Water Systems

    Green: Sewer Systems

26. The Contractor shall provide the District Engineer with As–Built plans upon completion of the work done in the State Right–of–Way. This shall be done prior to the Department's release of the performance bond.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: D Toba
Checked: H Andrews
Approved: J Yamamoto
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: R. M. TOWILL CORPORATION
Planning – Engineering – Environmental Services – Photogrammetry – Surveying – Construction Management
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PEARL HIGHLANDS STATION

GENERAL UTILITIES NOTES

SHEET 2 OF 2

Contract No.: SV–245
CADD File: SC4–D01–UG003
Drawing No: UG003 Rev. A
Scale: None
Page No. 52 of 180

PULLBOX, HANDHOLE, MANHOLE SCHEDULE

(4)	2' x 4'	HECO Handhole
(6)	3' x 5'	HECO Handhole
(9)	6' x 11'	HECO Handhole
(14)	6' x 11'	HECO Manhole
(16)	6' x 14'	HECO Manhole
(17)	8' x 17'	HECO Manhole
(44)	2' x 4'	HT Handhole
(50)	4' x 6'	HT Manhole
(84)	2' x 4'	CATV Handhole
(86A)	3' x 5'	CATV Manhole
(87)	4' x 6'	CATV Handhole
(100)	State Highways Street Light (UON) Pullbox Type A	

ELECTRICAL SYMBOLS

- Existing Pole
- New Pole
- Guy Anchor
- Existing 70 Watt Street Light Standard
- 150 Watt HPS Street Light Standard
- 250 Watt HPS Street Light Standard
- Manhole
- Handhole or Pullbox
- UON — Unless Otherwise Noted
- Underground Ductline
- Ductline, Stub–Out 5'–0" from edge of sidewalk or as indicated on plan. Provide concrete stub–out marker.
- (1) Key Note Indicator
- [2 E 4 A] Duct Section Indicator
- HECo Padmount Switchgear
- HECo Padmount Transformer
- (M) Traffic Signal Meter Pedestal (1 / UP304)

Duct Designation

[2 E 4 A]

- A — Duct Section "A" see Duct Section Details on sheet UP303
- 4 — Conduit Size
- E — System "ST" Subtransmission Electric (46kV)
  "P" Primary Electric (12KV)
  "S" Secondary Electric
  "V" Cable Television
  "T" Telephone/Telecommunications
  "SC" Highway Lighting
  "SP" Spare
- 2 — Number of Ducts

—OH/ST/P/S/T/V/G— Overhead Utility Lines

- G — Guy
- V — CATV
- T — Telephone
- S — Secondary Electric
- P — Primary Electric
- ST — Subtransmission Electric (46kV)
- OH — Overhead (New)
  eOH — Overhead (Existing)

Removal Notes:

1. "–––\–––\–––" noted on plans for underground removal work indicates that the respective utility owner will remove its cables from the existing conduits and the Contractor will remove the street light cables from the existing conduits, and the existing conduits will be abandoned in place.
2. "–––**R**–––**R**–––" noted on plans for overhead removal work indicates that the respective utility owner will remove its overhead conductors (and poles, guys, and anchors if so designated) and the Contractor will remove the overhead street light conductors (and street light poles and fixtures if so designated) from the existing overhead pole line.
3. The Contractor shall coordinate with the State of Hawaii street light Engineer for the disposal of the existing street light poles and fixtures where designated for removal.

GENERAL UTILITIES NOTES

1. Refer to general utilities notes, symbols, abbreviations and utility relocation notes on other "UG" sheets (UG001 to UG003 and UG005–UG008).
2. All ductline installation shall be PVC Schedule 40 conduits and encased in concrete unless otherwise specified.
3. Scope of Work: The Contractor shall furnish all labor, equipment and services to properly perform and fully complete all work shown on the Contract Drawings and in accordance with Contract Specifications as summarized below:
   a. The Contractor is responsible to provide all underground electrical and communications utility support structures, stubbed–up risers and at–grade equipment concrete pads.
   b. All handholes and pullboxes located next to uncurbed roadways shall be designed to comply with AASHTO LRFD Bridge Design Specifications, Second Edition for HL–93 truckload (axle load = 32,000lbs; wheel load = 16,000lbs) or shall be protected by post barriers to prevent vehicles from driving over the handholes and pullboxes.
   c. Utility owners are responsible to provide poles, cables, and equipment for electrical and communications utilities and remove all poles, cables, and equipment for electrical and communications utilities where indicated on the Contract Drawings.
   d. The Contractor shall provide the required number of as–built drawings showing the offsets, stationing and vertical elevation of the ductline(s) constructed.
   e. All ductlines, handholes, transformers, switches, and miscellaneous utility equipment within private property will be covered by a blanket utility easement. Easement dimensions are noted on the plans only for padmount transformers and switches. Coordinate easement dimensions and requirements for all other utility facilities with the appropriate utility.
   f. The Contractor is responsible to provide all street light and traffic signal work as noted on the Contract Drawings.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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For reduced prints, original page size in inches: 0 1 2 3 4

PEARL HIGHLANDS STATION

UTILITIES NOTES AND SYMBOLS ELECTRICAL & COMMUNICATIONS

Contract No.: SV–245
CADD File: SC4–D01–UG004
Drawing No: UG004 Rev.
Scale: N/A
Page No. 53 of 180

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OCEANIC TIME WARNER CABLE CONSTRUCTION NOTES

1. The Contractor shall procure and pay for all licenses and permits and shall give all notices necessary and incident to the due and lawful prosecution of the work.

2. The locations of existing utilities are approximate only. The Contractor shall verify their locations and shall be responsible for any damages to these utilities as a result of his operations. Adjustments to the new ductline alignment, if required, shall be made to provide the required clearances.

3. The Contractor shall brace all poles or light standards near the new ductline, manhole or handhole during its operations.

4. The Contractor shall saw–cut A.C. pavement, concrete gutter, and concrete sidewalk wherever new manholes, handholes, pullboxes or ductlines are to be placed and shall restore to existing condition or better.

5. The underground pipes, cables, or ductlines known to exist from search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the areas. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.

6. The Contractor, at his own expense, shall keep the project and surrounding area free from dust nuisance. The cost for supplementary measures, which will be required by the City, shall be borne by the Contractor.

7. Prior to the excavation of the ductline, the contractor shall request Oceanic Time Warner Cable (OTWC) to locate its existing ductline wherever required.

8. The Contractor shall take necessary precaution not to damage existing cables or ducts. Any work involving existing OTWC cables or ducts shall be done in the presence of the OTWC inspector or his representative. Temporary cable and duct supports shall be provided wherever necessary.

9. The Contractor shall notify the OTWC inspector 72 hours prior to the pouring of concrete or backfilling. Contact Moki Place at 1–808–306–0658.

10. Wherever connections to existing utilities are shown on the plans, the Contractor shall expose the existing lines prior to excavation of the main trenches to verify their locations and depths.

11. The Contractor shall provide all materials and furnish all labor and equipment necessary to install the ductline in place complete.

12. The Contractor shall be responsible for laying out all required lines and grades and shall preserve all bench marks and working points necessary to lay out the work correctly. The new ductline shall be adjusted by the Contractor to suit the existing conditions and the details as described in the plans.

13. The Contractor, at his own expense, shall keep the project area free from dust nuisance. The work shall be in conformance with the air pollution control standards and regulations of the State of Hawaii, Department of Health.

14. The location of OTWC facilities shown on plans are from existing records with varying degrees of accuracy as to its actual fixed location. The Contractor shall use extreme caution when working in close proximity of OTWC facilities.

15. The Contractor shall obtain excavation permit clearance from OTWC's engineering section located at 200 Akamainui St., Mililani Tech Park.

16. For verification of OTWC facilities or toning, the Contractor shall call 1–866–423–7287 (one–call center).

17. Any work required to relocate OTWC cables shall be done by OTWC and the Contractor shall be responsible for all coordinaion requirements and associated costs.

18. Any damage to OTWC's facilities shall be reported to OTWC's repair dispatch department at 1–808–625–8437.

19. The Contractor shall tunnel under existing concrete curb and gutter as necessary to extend conduit into existing OTWC pullbox and into the proposed power supply pullbox.

20. All existing improvements that are disturbed during the construction phase shall be restored to its original or better condition at no cost to the City in accordance with City's standards.

21. At locations where existing OTWC pullbox replacement is proposed, the Contractor shall take all necessary precaution not to damage the existing cables in the pullbox. All damages to existing cables shall be repaired by OTWC and paid for by the Contractor.

22. The Contractor shall coordinate all penetration of telephone pullboxes with the Hawaiian Telcom inspector.

23. The Contractor shall smooth finish inside wall of existing pullboxes and handholes to its original condition or better.

24. For 2" conduits or larger, the Contractor shall install NEPTCO WP1800 muletape or approved equal in all ductlines, leave muletape in place for future use as a pull or fish line, unless otherwise noted. Reference Hawaiian Telcom material code no. 571154. All ducts shall be capped to prevent entry of foreign material during construction and at completion of installation. Endbells are required for conduits 2" and larger.

25. The Contractor shall place poly cord throughout project, and secure in manholes, handholes, and pullboxes.

26. Penetration into pullboxes, if necessary, to be from factory installed opening or from bricks position. Penetration from pullbox walls is not acceptable.

27. A minimum of (2) precast sections must be used on all 2'x4' or 2'x6' pullboxes.

28. Two minimum layers of bricks to be used shall always be at least one layer lower than the lowest duct entering the pullbox. At no time however, shall there be less than two layers of bricks on each installation.

29. At no time shall cement mortar, wood, or any other material be used between precast sections. Leveling or raising of boxes to grade must be done at brickwork section using cement mortar. The permanent installation of wooden wedges to accomplish this purpose will not be accepted.

30. Concrete precast base may be used as an alternative to bricks.

31. The Contractor shall provide 5/8" dia. x 8'–0" galvanized ground rod in all OTWC pullboxes except @ HECO transformer pad locations and in 12"x20" pullboxes. Ground rod to extend 4" above finish pullbox floor and placed near corner.

32. Trenching to be by hand digging near and across existing utility lines.

33. Minimum clearance between street light stand and fire hydrants shall be three feet.

34. Underground utilities shown hereon is for information only. No guarantee is made on the accuracy or completeness of said installation.

35. For underground cable locating and marking, five working days advance notice is required. Three working days advance notice is required for any inspection by a designated representative. Contractor shall take necessary precaution not to damage any existing cables or ducts. OTWC's inspector or designated representative is required to be at any job site whenever there will be a breakage into or entry into any structure that contain OTWC's facilities.

36. Concrete strength shall be 3000 psi in 28 days.

37. Bends in the duct alignment, due to changes in grade shall have a minimum radius of 20 feet. All 90–degree C–bends at a pole or at the building floor slab penetration shall have a bend radius of ten times the diameter of the duct or greater.

38. After ductline has been completed, a mandrel with a square front not less than 12 inches long and having a diameter of ¼–inch less than the inside diameter of duct, shall be pulled through each duct after which a brush with stiff bristles shall be pulled through to make certain that no particles of earth, sand, or gravel have been left inside. Ducts shall be completely dry and clean.

39. Metallic entrance conduits shall be grounded.

40. All conduits within a building shall:

    a. be installed in the shortest and straightest possible run;
    b. have no section longer than 100 feet nor contain more than two 90–degree bends (an approved sized junction box or gutter box shall be placed if this is exceeded); and
    c. all bends shall be long sweep–radius bends, but the inside radius of the bend must never be less than ten times the diameter of the conduit.

41. All construction must be inspected and approved by OTWC prior to the installation of any of its facilities and the energizing of its system.

42. The Contractor and/or customer shall provide OTWC with sufficient installation time in their occupancy time table.

43. The Contractor shall install 4–mil thick orange color warning tape 3–inch wide, entire length of trench when placing OTWC conduits. Tape should read "CAUTION BURIED CABLE LINE BELOW" and manufactured by Harris Industries, Inc., catalog number UT–43 or equivalent tape. Tape to be installed 12 inches below grade.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB 122 PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

UTILITY RELOCATION NOTES
ELECTRICAL & COMMUNICATIONS

SHEET 1 OF 4

Contract No.: SV–245
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Drawing No: UG005 | Rev.
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HAWAIIAN TELCOM CONSTRUCTION NOTES

1. The Contractor shall produce and pay for all licenses and permits and shall give all notices necessary and incident to the due and lawful prosecution of the work.

2. The Contractor shall obtain an excavation permit and toning request from Hawaiian Telcom's excavation permit section. The excavation desk has drop–off/pick–up service only. Counter service is not available. Drop–off/pick–up location is 1177 Bishop Street, Security Department located on Adams Lane. Drop–off/pick–up hours are 8:00am to 11:00am and 1:00pm to 4:00pm Monday through Friday, except holidays. At time of drop–off, the Contractor must:

   a. Provide a copy of your State, City & County or Military trenching permit application form (Note: If you are excavating on private property, this form is not required).

   b. Provide 3 copies of site plans, preferably half–size (11"x17").

   c. Completed and signed Hawaiian Telcom drop–off form. This form is available at www.hawaiiantel.com/customerservice_ excavation.htm.

   d. The Contractor should submit drawings a minimum of 2 weeks prior to the start of construction to allow adequate time for review of the plans provided.

3. Prior to the excavation of the ductline, the Contractor shall request Hawaiian Telcom to locate existing ductline wherever required. For underground cable locating and marking, five (5) working days advance notice is required. Three (3) working days advance notice is required for any inspection by a designated representative.

4. The locations of existing utilities are approximate only. The Contractor shall exercise extreme caution and shall maintain proper clearances whenever construction crosses or is in close proximity of Hawaiian Telcom facilities. The Contractor shall verify their locations and shall be liable for any damages to Hawaiian Telcom facilities. Any damage shall be reported immediately to Hawaiian Telcom's repair section at #611 (24 hours) or to the excavation permit section at 1–808–546–7746 (Normal working hours, Monday through Friday, except Holidays). As a result of his operations, adjustments to the new ductline alignment, if required, shall be made to provide the required clearances.

5. The Contractor shall take necessary precaution not to damage existing cables or ducts. A Hawaiian Telcom Inspector or designated representative is required to be at any job site whenever there will be a breakage into or entry into any structure that contain Hawaiian Telcom facilities. Temporary cable and duct supports shall be provided wherever necessary.

6. The Contractor shall notify Hawaiian Telcom's Inspector at 1–808–840–5823 or designated representative a minimum of 72 hours prior to excavation, bracing, or backfilling of Hawaiian Telcom's structures or facilities.

7. All applicable construction work shall be done in accordance with the "Hawaiian Telcom Standard Specifications for Placing Underground Telephone Systems" dated January 2007. All subsequent amendments and additions, and all other pertinent standards for telephone construction. The Contractor shall familiarize his personnel by obtaining applicable specifications.

8. When excavation is adjacent to or beneath Hawaiian Telcom's existing structures of facilities, the Contractor shall:

   a. Sheet and/or brace the excavation to prevent slides, cave–ins, or settlements to ensure no movement to Hawaiian Telcom's structures or facilities.

   b. Protect existing structures and/or facilities with beams, struts, or underpinning while excavating beneath them to ensure no movement to Hawaiian Telcom's structures or facilities.

9 The Contractor shall brace all poles or light standards near the new ductline, manhole, or handhole during his operations.

10. The Contractor shall saw–cut A.C. pavement and concrete gutter wherever new manholes, handholes, or ductlines are to be placed and shall restore to existing condition or better.

11. The Contractor shall comply with the policy adopted by the Department of Planning & Permitting, City and County of Honolulu, concerning the replacement of concrete sidewalks after excavation work.

12. The underground pipes, cables, or ductlines known to exist from search of records are indicated on the plans. The contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify locations and depths prior to excavation for the new lines.

13. Whenever connections to existing utilities are shown on the plans, the Contractor shall expose the existing lines prior to excavation of the main trenches to verify their locations and depths.

14. The Contractor, at his own expense, shall keep the project and surrounding area free from dust nuisance. The cost for supplementary measures, which will be required by the City and County, shall be borne by the Contractor.

15. The Contractor shall pump all manholes dry during final inspection.

16. The Contractor shall notify Hawaiian Telcom Inspector 24 hours prior to the pouring of concrete or backfilling.

17. When connecting to manhole walls, all existing reinforcing bars shall be left intact. Ducts shall be adjusted in the field in order to clear reinforcing.

18. The Contractor shall be responsible for laying out all required lines and grades and shall preserve all bench marks and working points necessary to lay out the work correctly. The new ductline shall be adjusted by the Contractor to suit the existing conditions and the details as described in the plans.

19. Minimum concrete strength shall be:
    for ductline 2500 psi at 28 days
    for manhole 3000 psi at 28 days or as specified in design notes

20. Bends in the duct alignment, due to changes in grade shall have a minimum radius of 25 feet. All 90 degree C–bends at a pole or at the building floor slab penetration, shall have a bend radius of ten times the diameter of the duct or greater.

21. After ductline has been completed, a mandrel with a square front not less than 12" long and having a diameter of 1/4" less than the inside diameter of the duct, shall be pulled through each duct after which a brush with stiff bristles shall be pulled through to make certain that no particles of earth, sand, or gravel have been left inside. Ducts shall be completely dry and clean.

22. All ducts and conduits shall have an 1800# polyester mule–tape (NEPTCO, WP1800p, Hawaiian Telcom material code no. 571154) installed throughout its entire length. All ducts shall be capped to prevent entry of foreign material during construction and at the completion of installation.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB 122 PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

UTILITY RELOCATION NOTES
ELECTRICAL & COMMUNICATIONS

SHEET 2 OF 4

Contract No.: SV–245
CADD File: SC4–D01–UG006
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HAWAIIAN ELECTRIC COMPANY NOTES

1. Location of HECO Facilities

The location of Hawaiin Electric Company's (HECO) overhead and underground facilities shown on the plans are from existing records with varying degrees of accuracy and are not guaranteed as shown. The Contractor shall verify in the field the locations of the facilities and shall exercise proper care in excavating and working in the area. Wherever connections of new utilities to existing utilities and utility crossings are shown, the Contractor shall expose the existing lines at the proposed connections and crossings to verify the depths prior to excavation for the new lines. The Contractor shall be responsible for any damages to HECO's facilities whether shown or not shown on the plans.

2. Compliance with Hawaii Occupational Safety and Health Laws

The Contractor shall comply with the State of Hawaii's Occupational Safety and Health Laws and Regulations, including without limitation, those related to working on or near exposed or energized electrical lines and equipment.

3. Excavation Clearance

The Contractor shall obtain an Excavation Permit from HECO's Technical Division 1-808-543-5654 located at 820 Ward Avenue, 4th floor, two weeks prior to starting construction. Please refer to our request number at that time.

4. Caution!!! Electrical Hazard!!!

Existing HECO overhead and underground lines are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The Contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities, which can result in electrocution.

5. Overhead Lines

State Law (OSHA 1910.269(k)(2B)) requires that a worker and the longest object he or she may contact cannot come closer than a minimum radial clearance of 10 feet when working close to or under any overhead lines rated 50kV and below. For each additional 10kV above 50kV, an additional 4 inches shall be added to the 10-foot clearance requirement. The preceding information on line clearance requirements is provided as a convenience and it is the Contractor's responsibility to be informed of and comply with any revisions or amendments to the law.

Should the Contractor anticipate that his work will result in the need to encroach within the minimum required clearance at any time, the Contractor shall notify HECO at least four (4) weeks prior to the planned encroachment so that, if feasible, the necessary protections (e.g. relocate or de-energize HECO lines) can be put investigated. HECO may also be able to blanket its distribution (12kV and below) lines to provide a visual aid in preventing accidental contact. HECO's cost of safeguarding its lines will be charged to the Contractor.

Contact HECO's Customer Installations Department at 1-808-543-7846 for assistance in identifying and safeguarding overhead power lines.

Please note that encroachment within the required minimum clearance for 46kV and 138kV circuits may require a considerably longer time to relocate or de-energize these types of circuits. The Contractor is advised to contact the HECO Project Manager immediately to determine feasible solutions.

6. Pole Bracing

A minimum clearance of 10 feet must be maintained when excavating around utility poles and/or their anchor system to prevent weakening or pole support failure. Should work require excavating within 10 feet of a pole and/or its anchor system, the Contractor shall protect, support, secure, and take all other precautions to prevent damage to or leaning of these poles. The Contractor is responsible for all pole bracing designs and structural calculations, as well as the associated costs to brace, repair, or straighten poles. All means of structural support for the pole and/or anchor system proposed by the Contractor shall be submitted to HECO's Customer Installation Department (1-808-543-7846) for review a minimum of ten (10) working days prior to implementation. The cost of HECO's review/assistance in providing proper support and protection of its poles will be charged to the Contractor.

7. Underground Lines

The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of underground lines. HECO's existing electrical cables are energized and will remain energized during construction. Only HECO personnel are to break into existing HECO facilities, handle these cables, and erect temporary guards to protect these cables from damage. The cost of HECO's assistance in providing proper support and protection of its underground lines will be charged to the Contractor. For assistance/coordination in providing proper support and protection of the lines, the Contractor shall call HECO's Customer Installations Department at 1-808-543-7846 a minimum of ten (10) working days in advance.

Special precautions are required when excavating near HECO's 138kV underground lines (see HECO instructions to Consultants/Contractors on "Excavation Near HECO's Underground 138kV Lines" for detailed requirements).

For verification of underground lines, the Contractor shall call the Hawaii One Call Center at 1-866-423-7287 a minimum of five (5) working days in advance.

8. Underground Fuel Pipelines

The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of HECO's underground fuel oil pipelines. Special precautions are required when excavating near HECO's underground fuel oil pipelines (see HECO's specific fuel pipeline "guidelines" to Consultants/Contractors on excavation near HECO's underground fuel pipelines for detailed requirements).

9. Excavations

When trench excavation is adjacent to or beneath HECO's existing structures or facilities, the Contractor is responsible for:

a) Arranging for HECO standby personnel to observe work at the Contractor's cost.
b) Sheeting, bracing, or otherwise supporting the excavation and stabilizing the existing ground to render it safe and secure and to prevent possible slides, cave-ins, and settlements.
c) Properly supporting existing structures or facilities with beams, struts, under-pinnings, or other necessary methods to fully protect it from damage.
d) Backfilling with proper backfill material including special thermal backfill where existing (refer to Engineering Department for thermal backfill specifications).

10. Relocation of HECO Facilities

Any work required to relocate or modify HECO facilities shall be done by HECO, or by the Contractor under HECO's supervision. The Contractor shall be responsible for all coordination, and shall provide necessary support for HECO's work, which may include, but not be limited to, staking of pole/anchor locations, identifying right of way and property lines, excavation and backfill, permits and traffic control, barricading, and restoration of pavement, sidewalks, and other facilities.

All costs associated with any relocation or modification (either temporary or permanent) for the convenience of the Contractor, or to enable the Contractor to perform his work in a safe and expeditious manner in fulfilling his contract obligations shall be borne by the Contractor.

11. Conflicts

Any redesign or relocation of HECO's facilities not shown on the plans may be cause for lengthy delays. The Contractor acknowledges that HECO is not responsible for any delay or damage that may arise as a result of any conflicts discovered or identified with respect to the location or construction of HECO's electrical facilities in the field, regardless of whether the Contractor has met the requested minimum advance notices. In order to minimize any delay or impact arising from such conflicts, HECO should be notified immediately upon discovery or identification of such conflict.

12. Damage to HECO Facilities

The Contractor shall be responsible for the protection of all HECO surface and subsurface utilities and shall be responsible for any damages to HECO's facilities as a result of his operations. The Contractor shall immediately report such damages or any hazardous conditions related to HECO's lines to HECO's Trouble Dispatcher at 1-808-548-7961. Repair work shall be done by HECO or by the Contractor under HECO's supervision. Costs for damages to HECO's facilities shall be borne by the Contractor.

In case of damage or suspected damage to HECO's fuel pipeline, the Contractor shall immediately notify HECO's Honolulu Power Plant Shift Supervisor at 1-808-533-2102 (a 24-hour number) so HECO personnel can secure the damaged section and report any oil spills to the proper authorities. In case of damage or suspected damage to the Waiau or Kahe fuel pipelines, the Contractor shall also notify Chevron at 1-808-682-2227. All costs associated with the damage, repair, and oil spill cleanup shall be borne by the Contractor.

13. HECO Stand-By Personnel

The Contractor may request HECO to provide an Inspector to stand-by during construction near HECO's facilities. The cost of such inspection will be charged to the Contractor.

The Contractor shall call HECO Customer Installations Department at 1-808-543-7846 a minimum of five (5) working days in advance to arrange for HECO Stand-By Personnel.

14. Clearances

The following clearances shall be maintained between HECO's ductline and all adjacent structures (charted and uncharted) in the trench:

MINIMUM SEPARATION CLEARANCES TO EXISTING UNDERGROUND DUCTLINES HORIZONTAL (PARALLEL)				
Utility Being Installed	Existing Direct Buried Cable	Existing Direct Buried in Conduit (no concrete encasement)	Exisitng 3" concrete encasement	Applicable notes:
HECO DB conduits	12"	3"	0"	
HECO 3" encasement	0"	0"	0"	
Telephone/CATV DB	12"	12"	6"	
Telephone/CATV DB ducts	12"	12"	6"	
Telephone/CATV 3" Encasement	0"	0"	0"	E
Traffic signal	12"	12"	12"	
Water DB	36"	36"	36"	A & D
Water Service Laterals	12"	12"	12"	
Water (concrete jacketed)	36"	36"	36"	A & D
Gas DB	12"	12"	12"	A
Gas (concrete jacketed)	12"	12"	12"	A
Sewer DB	36"	36"	36"	A & B
Sewer (concrete jacketed)	36"	36"	36"	A & B
Drain	12"	12"	12"	A
Fuel pipelines	48"	48"	48"	C

A. Where space is available, parallel clearance to other utilities, or foreign structures other than communication or traffic signal shall be 36".

B. If 36" clearance cannot be met:
- If clearance is less than 12", jacket sewer line with reinforced concrete (per HECO's standard 30-1030) for a distance of 5'-0" plus pipe diameter.
- If clearance is between 12" and 36", jacket sewer line with plain concrete.

C. Electrical conduit crossings of fuel lines should be kept a minimum of 48" clear below fuel line for the full easement width. If the 48" clearance cannot be met but there is a minimum of 24", the fuel line must be encased with 6" of concrete.

D. 5 feet clear to water mains 16" and larger.

E. For situations with 0" minimum separation, a 6" separation is recommended.

F. Clearances measured from outer edges or diameters of utilities.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

UTILITY RELOCATION NOTES ELECTRICAL & COMMUNICATIONS

SHEET 3 OF 4

Contract No.: SV-245
CADD File: SC4-D01-UG007
Drawing No: UG007
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Scale: N/A
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HAWAIIAN ELECTRIC COMPANY NOTES (continued)

MINIMUM SEPARATION CLEARANCES TO EXISTING UNDERGROUND DUCTLINES VERTICAL (CROSSINGS)				
Utility Being Installed	Existing Direct Buried Cable	Existing Direct Buried in Conduit (no concrete encasement)	Exisitng 3" concrete encasement	Applicable notes:
HECO DB conduits	6"	3"	0"	
HECO 3" encasement	0"	0"	0"	
Telephone/CATV DB	12"	12"	6"	
Telephone/CATV DB ducts	12"	12"	6"	
Telephone/CATV 3" Encasement	0"	0"	0"	D
Traffic signal	12"	12"	6"	
Water DB	6"	6"	6"	B
Water Service Laterals	6"	6"	6"	
Water (concrete jacketed)	6"	6"	6"	B
Gas DB	12"	12"	12"	
Gas (concrete jacketed)	12"	12"	12"	
Sewer DB	24"	24"	24"	A
Sewer (concrete jacketed)	24"	24"	24"	A
Drain	12"	12"	6"	
Fuel pipelines	48"	48"	48"	C

A. If clearance cannot be met:
- If clearance is less than 12", jacket sewer line with reinforced concrete (per HECO's standard 30–1030) for a distance of 5'–0" plus pipe diameter.
- If clearance is between 12" and 24", jacket sewer line with plain concrete.

B. 12" vertical clearance for pipe diameters greater than 16".

C. Electrical conduit crossings of fuel lines should be kept a minimum of 48" clear below fuel line for the full easement width. If the 48" clearance cannot be met but there is a minimum of 24", the fuel line must be encased with 6" of concrete.

D. For situations with 0" minimum separation, a 6" separation is recommended.

E. Clearances measured from outer edges or diameters of utilities.

The Contractor shall notify the Construction Manager and HECO of any heat sources (power cable duct bank, steamline, etc.) encountered that are not properly identified on the drawing.

15. Schedule

The Contractor shall furnish his construction schedule six (6) months prior to starting work on HECO facilities. The Contractor shall give HECO, in writing, three (3) months notice to proceed with HECO's portion of work.

16. Authority

All construction, restoration work, and inspection shall be subject to whichever Governmental Agency has authority over the work.

17. Specifications

Construction of HECO's underground facilities shall be constructed in accordance with the latest revisions of HECO Specifications CS7001, CS7003, CS7202, CS9301, and CS9401 and applicable HECO Standards.

18. Construction

The Contractor shall furnish all labor, materials, equipment, and services to properly perform and fully complete all work shown on the contract, drawings, and specifications. All materials shall be new and manufactured in the United States of America. All manhole, handhole, and ductline installations shall be inspected and approved by HECO prior to excavation and prior to placing concrete. The Contractor shall notify HECO's Inspection Division at 1–808–543–7520 at least 48 hours prior to placing concrete.

The Contractor shall coordinate work to break into HECO's existing electrical facilities with HECO's underground Division at 1–808–543–7520 at least ten (10) working days in advance.

19. Stakeout

The Contractor shall arrange for toneouts of all underground facilities and shall stakeout all proposed HECO facilities within the project area so as to not conflict with any utility (existing or proposed) and any proposed construction or improvement work for verification by HECO before proceeding with HECO work.

20. Ductlines

All ductline installations shall be PVC Schedule 40 encased in concrete, unless otherwise noted. All completed ductlines shall be mandrel tested by the Contractor in the presence of HECO's Inspector using HECO's Standard Practice. The Contractor shall install a 1/8" polyolefin pull line in all completed ductlines after mandrel testing is complete.

21. Joint Pole Removal

The last joint pole occupant off the poles shall remove the poles.

22. As–Built Plans

The Contractor shall provide HECO with two sets of as–built reproducible tracings showing the offsets, stationing, and vertical elevation of the duct line(s) constructed.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

UTILITY RELOCATION NOTES
ELECTRICAL & COMMUNICATIONS

SHEET 4 OF 4

Contract No.: SV–245
CADD File: SC4–D01–UG008
Drawing No: UG008
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Scale: N/A
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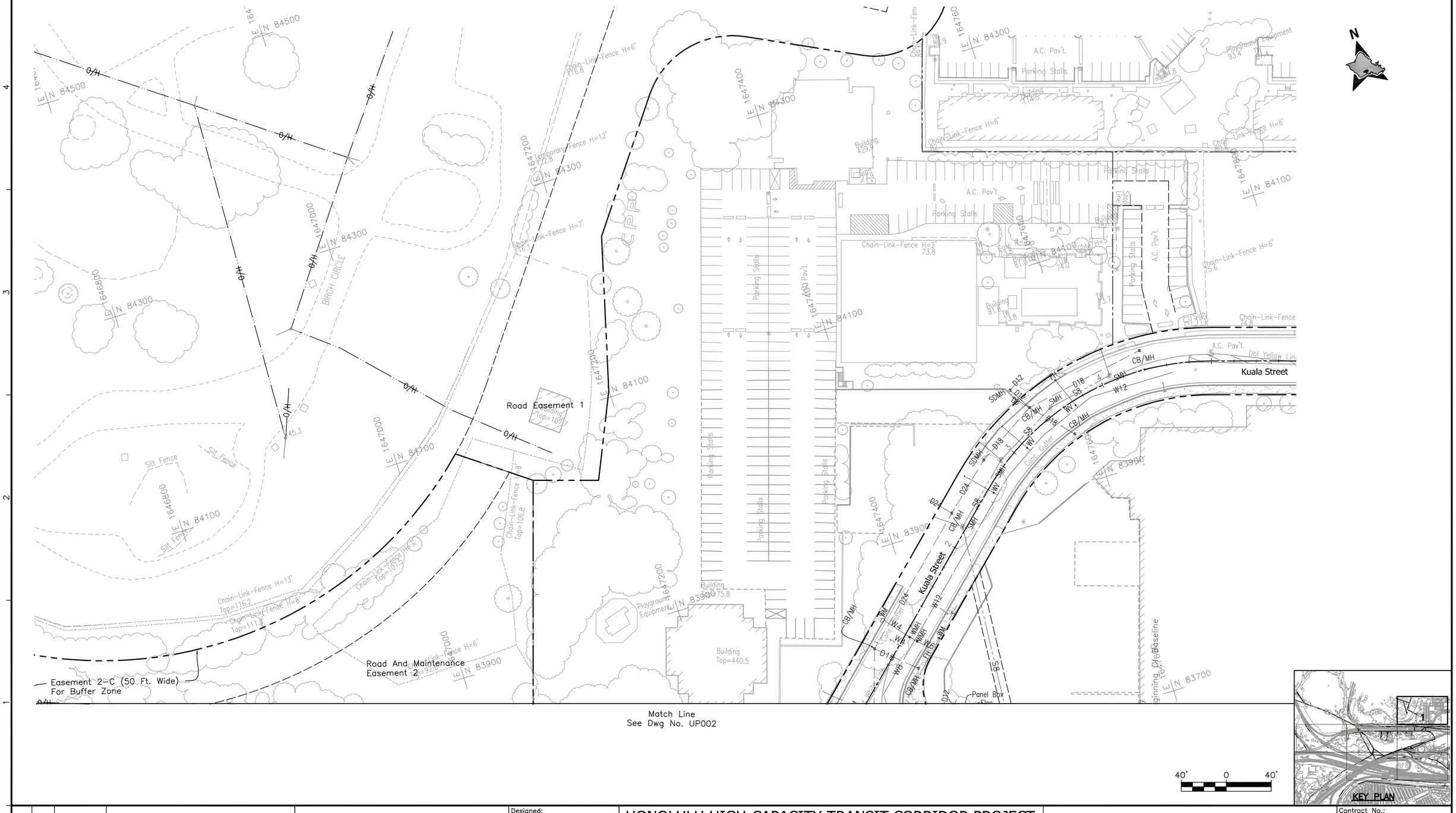

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Rev	By	Date	Description

Designed: N/A
Drawn: J. Cadiz
Checked: K. Nishio
Approved: K. Nishio
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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HONOLULU, HAWAII 96814

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PEARL HIGHLANDS STATION

COMPOSITE PLAN EXISTING UTILITIES

SHEET 1 OF 6

Contract No.: SV-245
CADD File: SC4-D02-UP001
Drawing No: UP001 Rev.
Scale: 1"=40'
Page No. 58 of 176

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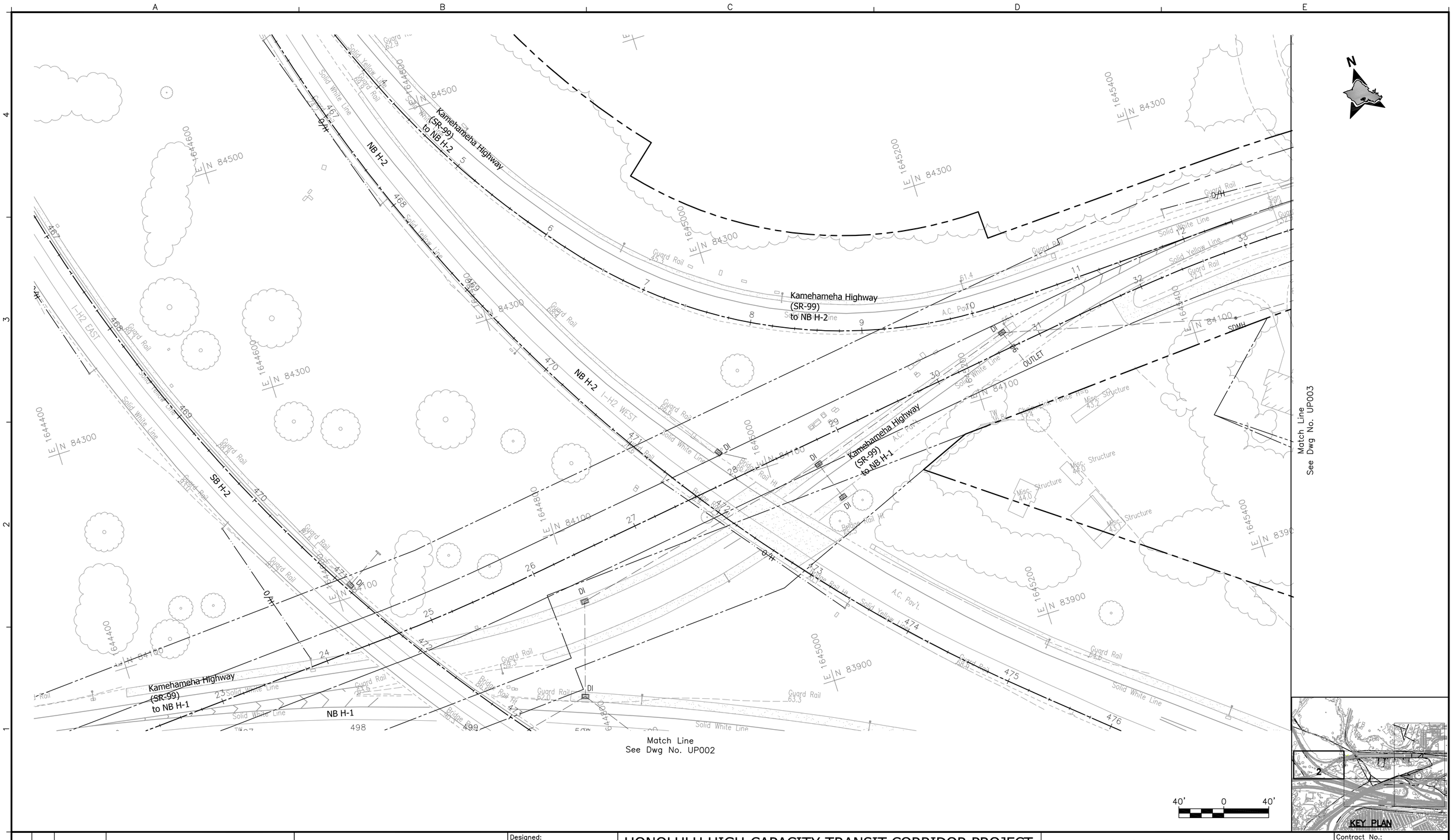

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: J. Cadiz
Checked: K. Nishio
Approved: K. Nishio
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: CONTROLPOINT SURVEYING, INC.
1150 SOUTH KING STREET, SUITE 1200
HONOLULU, HAWAII 96814

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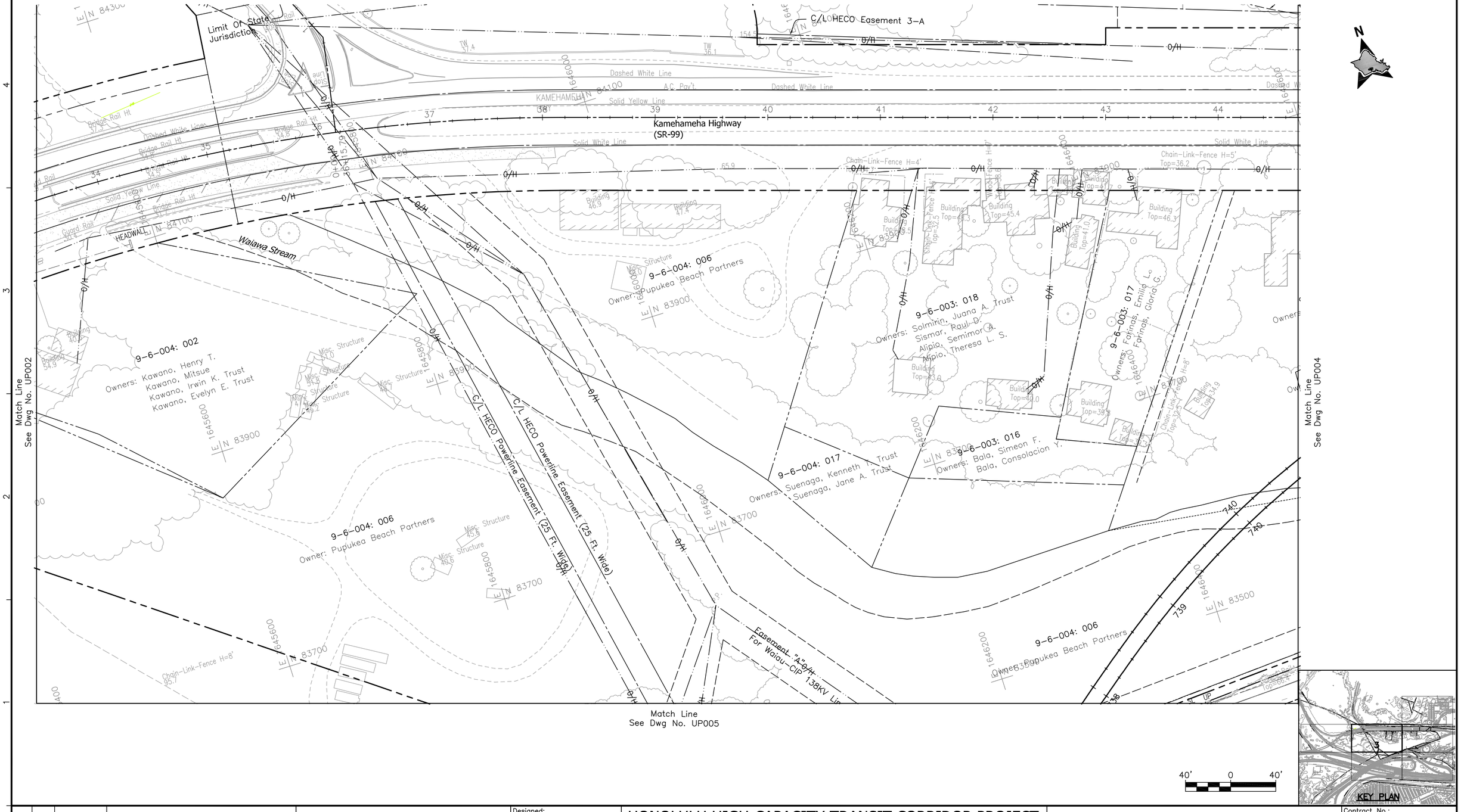
PEARL HIGHLANDS STATION

COMPOSITE PLAN EXISTING UTILITIES

SHEET 2 OF 6

Contract No.: SV-245
CADD File: SC4-D02-UP002
Drawing No.: UP002 Rev.
Scale: 1"=40'
Page No.: 59 of 176

2009-09-02 4:37 PM N:\TOPOGRAPHIC SURVEY MAPS\2007\000\07009-1\07009-1 Pearl Highlands\dwg\SC4-D02-UP001-UP006 for PDF plot.dwg



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: J. Cadiz
Checked: K. Nishio
Approved: K. Nishio
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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HONOLULU, HAWAII 96814

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PEARL HIGHLANDS STATION

COMPOSITE PLAN EXISTING UTILITIES

SHEET 3 OF 6

Contract No.: SV-245
CADD File: SC4-D02-UP003
Drawing No.: UP003 Rev.
Scale: 1"=40'
Page No.: 60 of 176

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Match Line
See Dwg No. UP001

Kamehameha Highway
(SR-99)

KAMEHAMEHA HIGHWAY

Farrington Highway (SR-93)

Waiawa Stream

9-6-003: 013
Owners: Reid, Rocky L.
Reid, Jill T.

9-6-003: 014
Owners: Bala, Simeon F.
Bala, Consolacion Y.

9-6-003: 015
Owners: Bala, Simeon F.
Bala, Consolacion Y.

9-6-003: 012
Owner: Alpha Omega Christian

9-6-003: 022
Owners: Hawaii Labor Apprenticeship
Laborers Int'l. Union

Easement A

Easement B

Easement 76
For Transformer Vault

Easement 9 (10 Ft.
For Sanitary Sewer

Easement U-1
For Sanitary Sewer
And Waterline Purposes

Limit Of State
Jurisdiction

Por. F.A.P. No. F9(55)

Match Line
See Dwg No. UP003

Match Line
See Dwg No. UP006

40' 0 40'

KEY PLAN

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: J. Cadiz
Checked: K. Nishio
Approved: K. Nishio
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant:
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HONOLULU, HAWAII 96814

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PEARL HIGHLANDS STATION

COMPOSITE PLAN EXISTING UTILITIES

SHEET 4 OF 6

Contract No.: SV-245
CADD File: SC4-D02-UP004
Drawing No: UP004 Rev.
Scale: 1"=40'
Page No. 61 of 176

Match Line
See Dwg No. UP003

Match Line
See Dwg No. UP006

EB Farrington Highway (SR-93)
to NB H-2

NB H-1 to NB H-2

NB H-1

SB H-1

SB Kamehameha Highway (SR-99)
/ EB Farrington Highway (SR-7101)
to SB H-1

NB H-1
to WB Farrington Highway
(SR-93)

Farrington Highway (SR-93)

EB Farrington Highway (SR-93)
to NB H-2

C/L HECO Underground
Powerline Easement (5 Ft. Wide)

9-6-003: Por. 043
Owner: United States Of America

2-F10 (Abnd) (Air Force)

40' 0 40'

KEY PLAN

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant:
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CONTROLPOINT SURVEYING, INC.
1150 SOUTH KING STREET, SUITE 1200
HONOLULU, HAWAII 96814

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PEARL HIGHLANDS STATION

COMPOSITE PLAN
EXISTING UTILITIES

SHEET 5 OF 6

Contract No.: SV-245
CADD File: SC4-D02-UP005
Drawing No: UP005 Rev.
Scale: 1"=40'
Page No. 62 of 176

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Match Line
See Dwg No. UP004

Match Line
See Dwg No. UP005

N

9-6-003: Por. 043
Owner: United States Of America

9-6-003: 045
Owner: U. S. A.

C/L Easement (10 Ft. Wide)
For Gas Line Purposes

Easement "C"

2-Air Force
10" Fuel
2-F10 (Abnd)

F10 (Abnd) (Air Force)

Abandoned
Pump Staton

Abnd Pump
Station

Trapezoidal
Ditch

2-F10 (Abnd) (Air Force)

EB Farrington Highway (SR-93)
to NB H-2

NB H-1
to WB Farrington Highway
(SR-93)

Waiawa Road

Waiawa Drive

WAIAWA DR

NB H-1

SB H-1

I-H1 WEST

I-H1 EAST

Control Box

Passenger Shelter

Bridge Rail Ht.

Retaining Wall

Chain-Link-Fence H=6'

Concrete Barrier

Guard Rail

Sign

Solid White Line

Dashed White Line

Dbl Yellow Line

Solid Yellow Line

A.C. Pav't.

Concrete Pav't.

Abnd

TMH

MTCo MH

TSC

TSB

TSP

SLC

SLB

SL

CTV

TW

D24

D30

D36

D48

F10

F12

AT&T

O/H

Line

Rail Ht.

Rail Line

Width

Bridge

Structure

Retaining

Wall

Walk

Ramp

Stop

Line

Curb

Gutter

Top=64.3

Top=64.4

Top=76.7

Top=64.0

Top=64.9

Top=64.7

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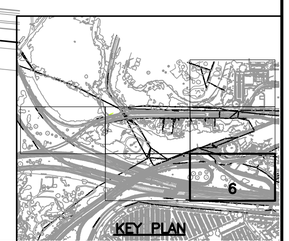
E 1646600 N 83100
E 1646800 N 83100
E 1647000 N 83100
E 1647200 N 83100
E 1646400 N 82900
E 1646600 N 82900
E 1646800 N 82900
E 1647000 N 82900
E 1647200 N 82900
E 1646600 N 82700
E 1646800 N 82700
E 1647000 N 82700
E 1647200 N 82700

519 520 521 522 523 524 525 526 527 528 529
493 494 495 496 497 498 499 500 501 502 503

40' 0 40'



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: J. Cadiz
Checked: K. Nishio
Approved: K. Nishio
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant:
PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:
CONTROLPOINT SURVEYING, INC.
1150 SOUTH KING STREET, SUITE 1200
HONOLULU, HAWAII 96814

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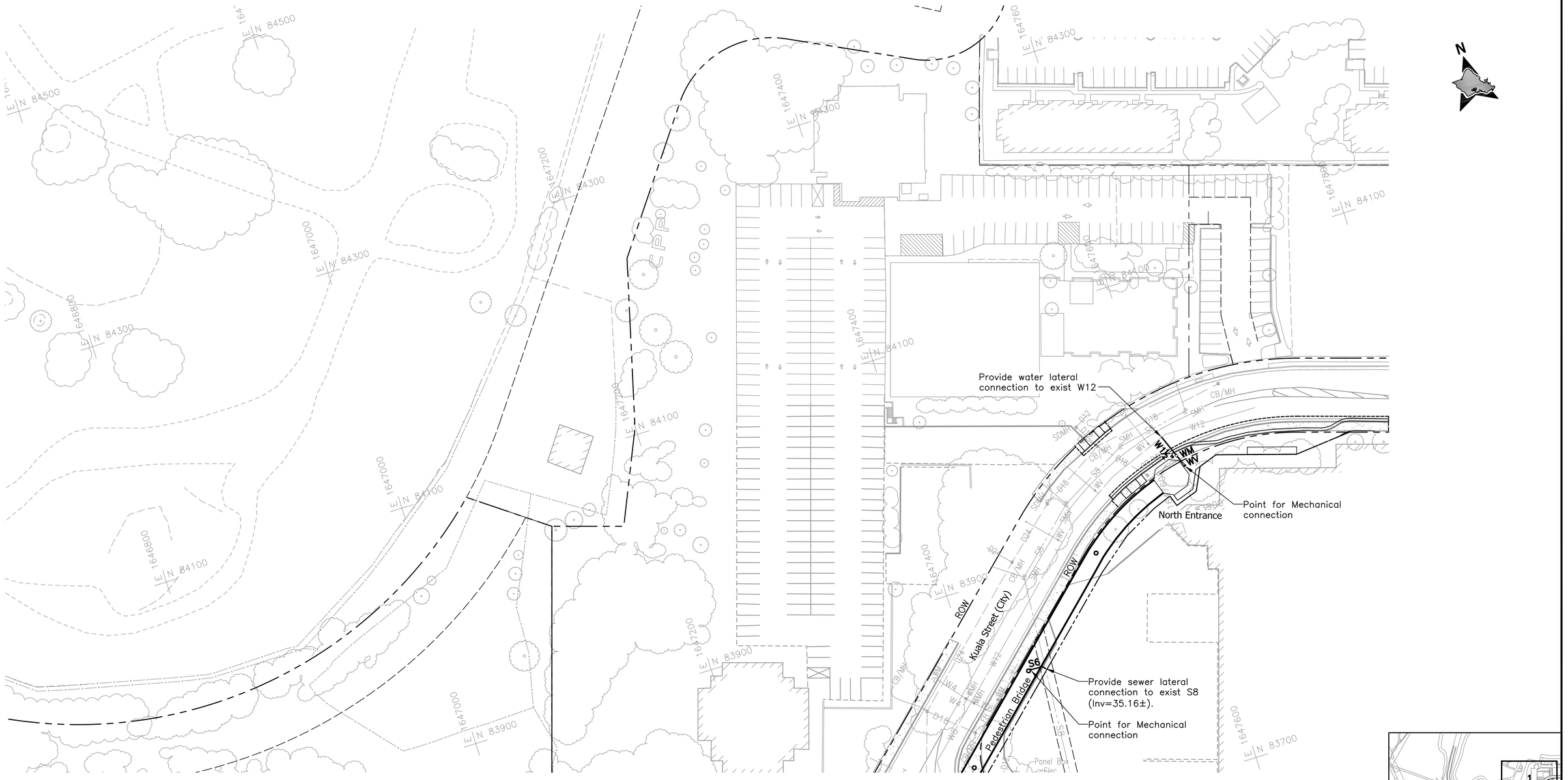
PEARL HIGHLANDS STATION

COMPOSITE PLAN EXISTING UTILITIES

SHEET 6 OF 6

Contract No.: SV-245
CADD File: SC4-D02-UP006
Drawing No: UP006 Rev.
Scale: 1"=40'
Page No. 63 of 176



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D Toba
Drawn: D Toba
Checked: H Andrews
Approved: J Yamamoto
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: R. M. TOWILL CORPORATION
Planning – Engineering – Environmental Services – Photogrammetry – Surveying – Construction Management
808 842 1133 2024 North King Street Suite 200 Honolulu Hawaii 96819–3470

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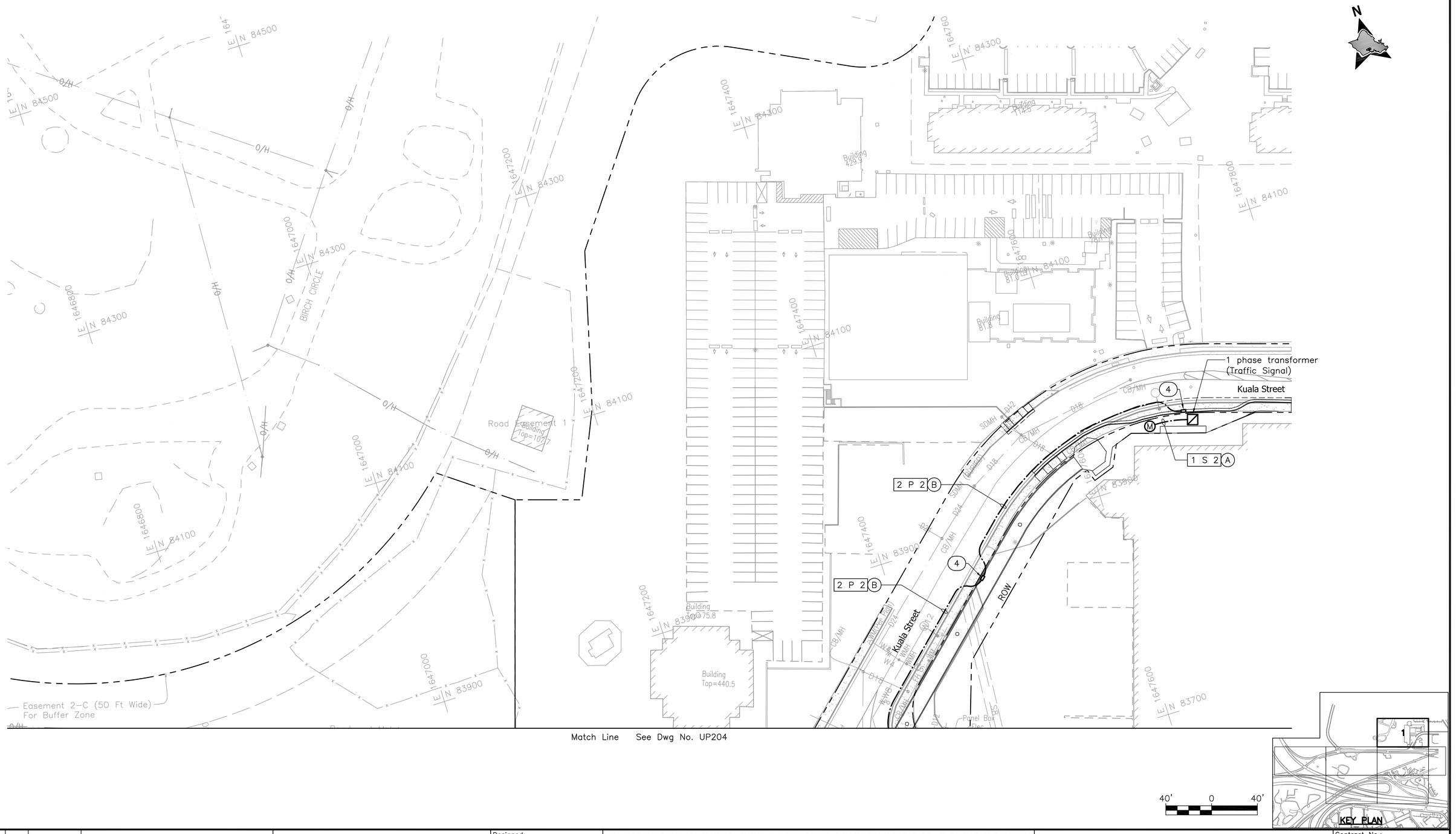
PEARL HIGHLANDS STATION

UTILITIES PLAN WATER & SEWER

Contract No.: SV–245
CADD File: SC4–D03–UP101
Drawing No: UP101 Rev. A
Scale: 1"=40'
Page No. 64 of 180



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: MKengineers
286 Kalihi Street
Honolulu, Hawaii 96819
Phone: (808) 848-8622
Fax: (808) 848-5574
E-Mail: info@mkhawaii.com

For reduced prints, original page size in inches: 0 1 2 3 4

PEARL HIGHLANDS STATION

UTILITY RELOCATION PLAN ELECTRICAL AND COMMUNICATIONS

SHEET 1 OF 4

Contract No.: SV-245
CADD File: SC4-D03-UP201
Drawing No: UP201
Rev.
Scale: 1"=40'
Page No. 65 of 180

Limit of State Jurisdiction
Waiholna Street
ROW
Existing HT ductline
Kamehameha Highway (SR-99)
Waiawa Stream
Existing HT handhole
Existing HECO manhole
Buses Only
Auto's Only
TMK: 9-6-004:002
Elevated ramp from H-2 Inbound (By Others)
TMK: 9-6-004:006
C/L HECO Powerline Easement (25 Ft. Wide)
Existing 138kV and 12kV Power Lines to remain
TMK: 9-6-004:017
TMK: 9-6-004:016
Easement 4-A For Waiau-CIP 138kV
HECO Easement 3-A
KAMEHAMEHA HWY
1 phase transformer (Traffic Signal)
3 phase transformer (St Lts)
PMH3 switchgear
PMH9 switchgear
Parking Structure Levels 1 thru 7 & Roof (Roof Level Elev=122.50)
TMK: 9-6-003:018
TMK: 9-6-003:017
TMK: 9-6-003:014
TMK: 9-6-003:016
TMK: 9-6-003:015
Building Top=45.4
Building Top=46.8
Building Top=41.0
Building Top=38.3
WB Track
740 EB Track
739
New pole and anchor (By Others)
ROW
Match Line See Dwg No. UP204

NOTES:

4 Provide pole riser conduits in complement indicated up to applicable location on pole.

5 Install conduits into manhole under applicable utility company supervision. See Detail 3/UP301.

8 Coordinate with utility for possible enlargement of manhole/handhole.

40' 0 40'

KEY PLAN

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB AECOM PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: MKengineers
286 Kalihi Street
Honolulu, Hawaii 96819
Phone: (808) 848-8622
Fax: (808) 848-5574
E-Mail: info@mkhawaii.com

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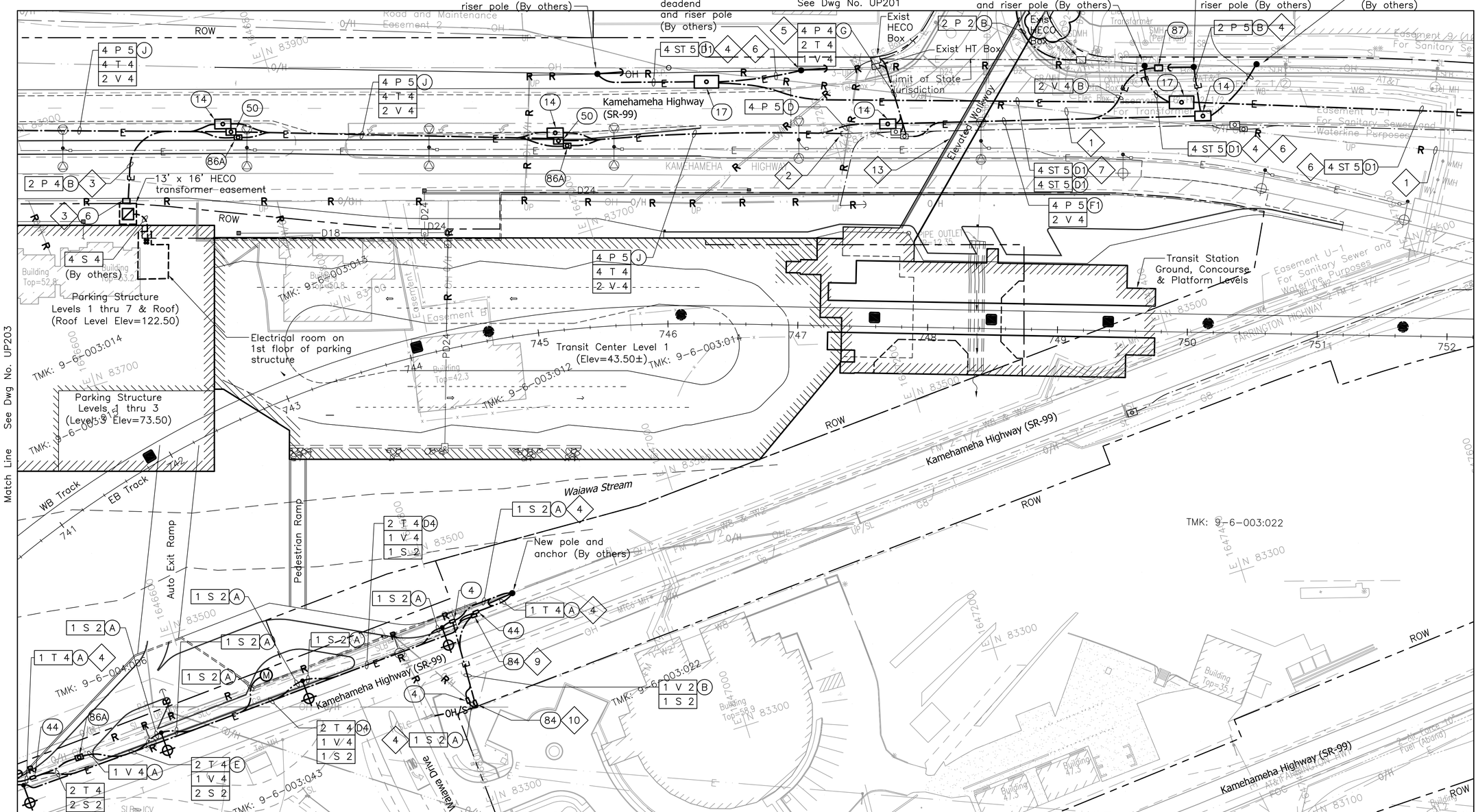
PEARL HIGHLANDS STATION

UTILITY RELOCATION PLAN ELECTRICAL AND COMMUNICATIONS

SHEET 2 OF 4

Contract No.: SV-245
CADD File: SC4-D03-UP203
Drawing No.: UP203 Rev.
Scale: 1"=40'
Page No. 66 of 180

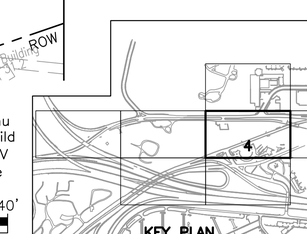
P101_PROJECTS\2007\2078\81-HHCTIP\FL_Stalkier\dwg\SC4-D03-UP201-UP204.dwg, SC4-D03-UP203, 9/9/2009 1:03:15 PM, dwyn, 1:1



NOTES:

1. Remove 46kV conductors only (By others). 138kV conductors to remain.
2. Connect new ducts to ducts installed on the West Oahu Farrington Highway Design Build Contract.
3. Preliminary new HECO service design only; Contractor shall coordinate and finalize the service request and design with HECO.
4. Provide pole riser conduits in complement indicated up to applicable location on pole.
5. Install conduits into manhole under applicable utility company supervision. See Detail 3/UP301.
6. See Detail 2/UP302.
7. Similar to Detail 3/UP302 except replace the 4-way electrical distribution ductbank with a 4-way electrical transmission or subtransmission ductbank.
9. Provide 1-4" sleeve between CATV handhole and HT handhole.
10. Intercept existing duct line with handhole as indicated.
13. Coordinate with the West Oahu Farrington Highway Design Build Contract to clear the HT/CATV ductline (By Others) from the footing of pedestrian bridge column.

40' 0 40'



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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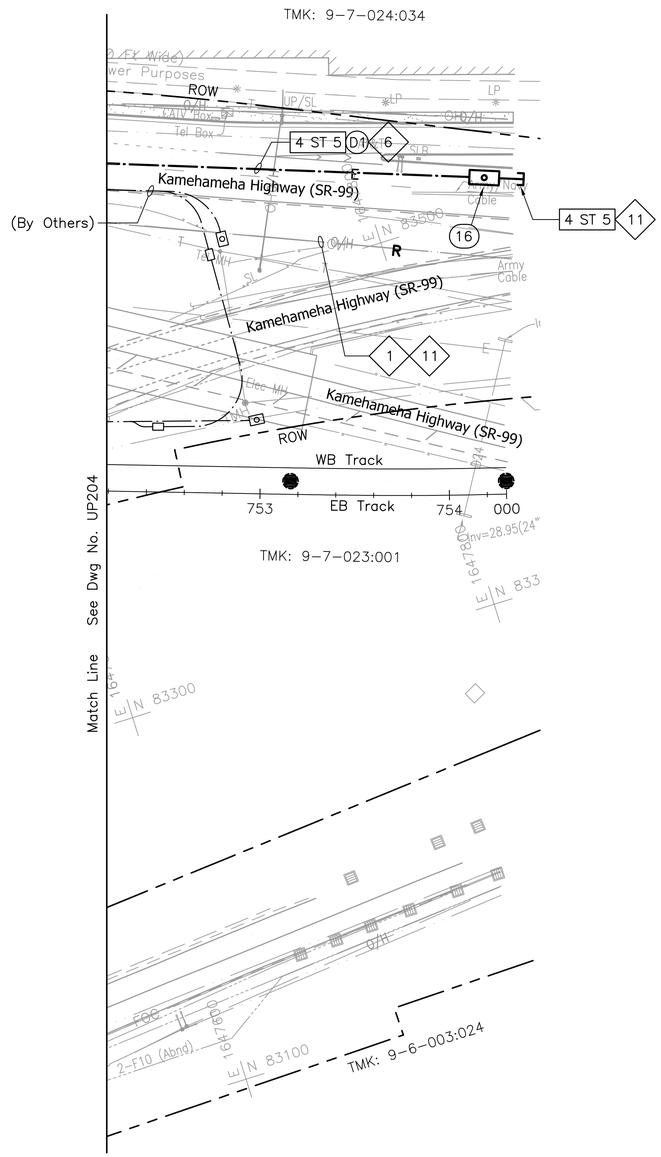
PEARL HIGHLANDS STATION

UTILITY RELOCATION PLAN
ELECTRICAL AND COMMUNICATIONS

SHEET 3 OF 4

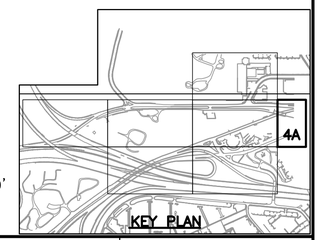
Contract No.: SV-245
CADD File: SC4-D03-UP204
Drawing No: UP204
Rev.
Scale: 1"=40'
Page No. 67 of 180



NOTES:

1. Remove 46kV conductors only (By others). 138kV conductors to remain.
6. See Detail 2/UP302.
11. Coordinate conversion of 46kV from overhead to underground with Kamehameha Guideway & Utilities Contractor.

40' 0 40'



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

UTILITY RELOCATION PLAN ELECTRICAL AND COMMUNICATIONS

SHEET 4 OF 4

Contract No.: SV-245
CADD File: SC4-D03-UP204A
Drawing No.: UP204A
Rev.:
Scale: 1"=40'
Page No.: 68 of 180

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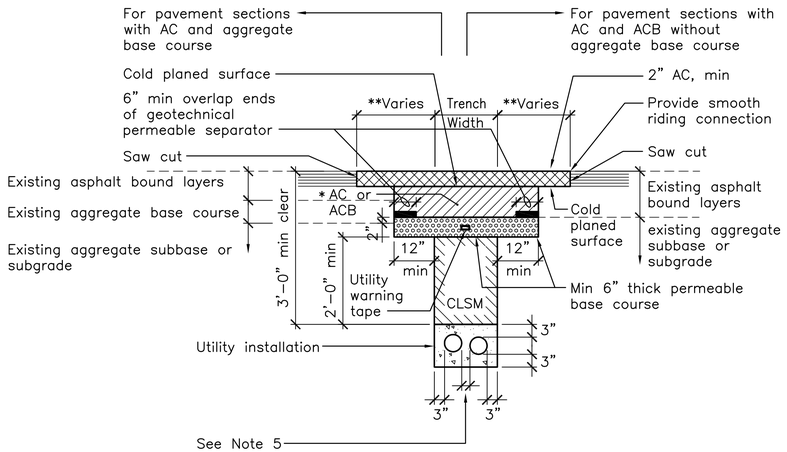


* NOTES:

1. When thickness less than 5", use AC.
2. When thickness 6" or greater, use ACB or AC.

** NOTES:

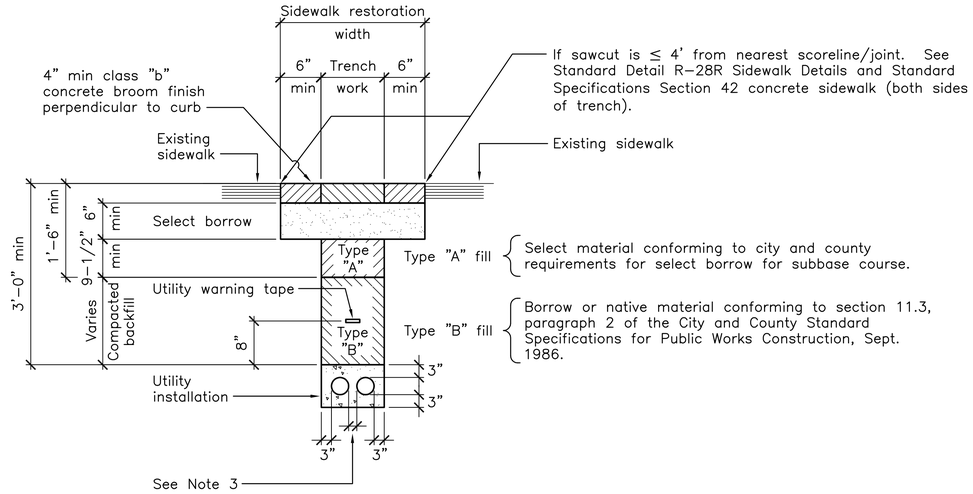
1. If trench aligned transverse to direction of travel, 6 feet on each side of trench.
2. If trench aligned along direction of travel, to edge of lane in which edge of trench is located.
3. Smoothness of paved surfaces; the distance from the paved surface to the testing edge of a ten-foot straight edge between two points of contact shall not exceed 3/16".

TYPICAL PAVEMENT RESTORATION DETAIL (1 / UP301)

NTS

NOTES:

1. This trench restoration is to be used wherever the pavement is an asphalt surface including medians and paved areas between guardrails. For concrete pavement or unpaved areas, see Civil Engineer for appropriate restoration details.
2. Tack coat existing asphalt bound material faces prior to filling excavation with asphalt bound material.
3. When ground water is encountered in trenches, backfill with gravel conforming to ASTM C-33, size 67 material until one foot above the water level. Encapsulate the size 67 material with a permeable separator that lines the bottom and sides of the trench and overlaps at the top of the material for the width of the trench. Complete backfilling the trench per detail.
4. Electrical and communication ducts similar.
5. Provide 2" separation between ducts of same system and 3" between ducts of different systems.
6. See duct section details for conduit arrangement.

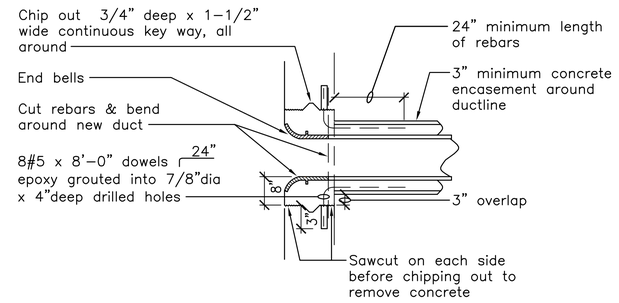


TYPICAL CONCRETE SIDEWALK AND BACKFILL DETAIL (2 / UP301)

SCALE: NTS

NOTES:

1. Concrete sidewalk to match existing thicknesses, or the minimum thickness shown, whichever is greater, for reinforcement detail at handhole. Refer to City and County R-16 standard details.
2. Electrical and communication ducts similar.
3. Provide 2" separation between ducts of same system and 3" between ducts of different systems.
4. See duct section details for conduit arrangement.



DETAIL OF TYPICAL DUCT ENTRY INTO MANHOLE/HANDHOLE/PULLBOX (3 / UP301)

NTS

For use within State of Hawaii right-of-way

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

ELECTRICAL & COMMUNICATIONS PAVEMENT RESTORATION DETAILS

Contract No.: SV-245
CADD File: SC4-D03-UP301
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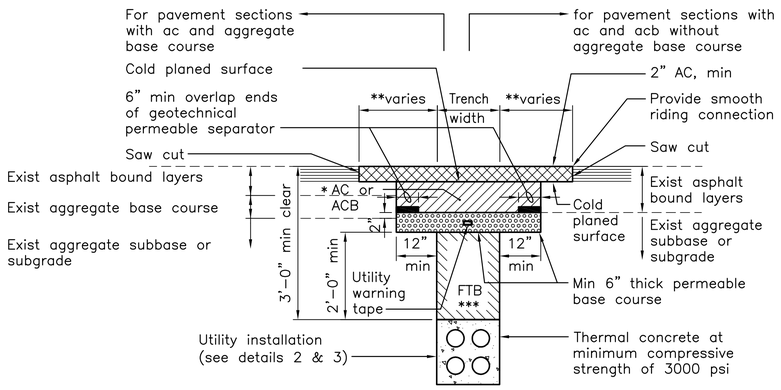


TYPICAL PAVEMENT RESTORATION DETAIL 1 / UP302

NTS

NOTES:

1. This trench restoration is to be used wherever the pavement is an asphalt surface including medians and paved areas between guardrails. For concrete pavement or unpaved areas, submit restoration details for approval.
2. Tack coat existing asphalt bound material faces prior to filling excavation with asphalt bound material.
3. When ground water is encountered in trenches, backfill with gravel conforming to astm C-33, size 67 material until one foot above the water level. Encapsulate the size 67 material with a permeable separator that lines the bottom and sides of the trench and overlaps at the top of the material for the width of the trench. Complete backfilling the trench per detail.

*** NOTES:**

1. When thickness less than 5", use AC.
2. When thickness 6" or greater, use ACB or AC.

**** NOTES:**

1. If trench aligned transverse to direction of travel, 6 feet on each side of trench.
2. If trench aligned along direction of travel, to edge of lane in which edge of trench is located.
3. Smoothness of paved surfaces; the distance from the paved surface to the testing edge of a ten-foot straight edge between two points of contact shall not exceed 3/16".

***** NOTES:**

1. Fluidized thermal backfill (ftb) at minimum compressive strength of 100 psi

THERMAL CONCRETE & FTB DESIGN MIX TABLE

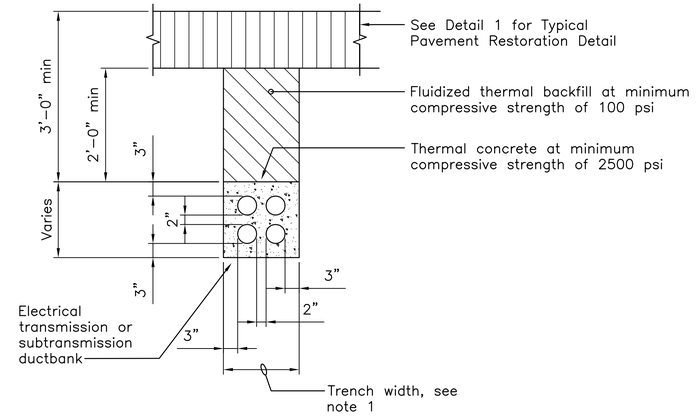
Materials	Type	Source	Specification compliance
Coarse aggregate	Bassalt	Kapaa	ASTM C 33
Dune sand	Coral	Maui	ASTM C 33
Concrete sand	Bassalt	Kapaa	ASTM C 33
Cement	I-II	Hawaiian Cement	ASTM C 150

WEIGHTS IN LBS PER CUBIC YARDS (SSD)

Material	SP. GR.	ABS	3000 psi - 3/4" pump	Fluidized Thermal Backfill (FTB)
Slump	--	--	5"	9"
#3 fine (#67)	2.70	3.5	1600	1550
Dune sand	2.65	2.0	504	500
Concrete sand	2.65	4.5	1154	1300
Cement	3.15		461 (4.9sk)	150 (1.6sk)
Water	1.00		292 (35.0gal)	433 (52.0gal)
Pozz 220n			3 - 5 OZ/sk	
Pozz 100xr			0 - 3 OZ/sk	
Air content %			1.7	1.7

Design Mix Table notes:

1. The thermal concrete and ftb design mixes shown are typical for soil thermal resistivities of 90 c-cm/w.
2. Contractor shall conduct in-situ soil thermal resistivity tests at sites requiring 46kV and 138kV underground conduits. The test reports shall be submitted to heco for determination of the range of thermal resistivities required for the thermal concrete and ftb at any specific site.

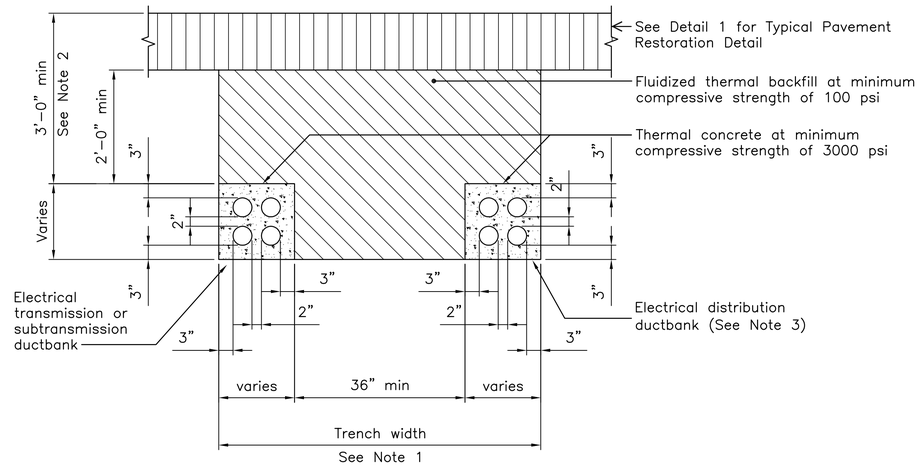


TYPICAL SINGLE DUCTBANK DETAIL 2 / UP302

NTS

NOTES:

1. Trench width to be determined by HECO based on number and size of conduits required for the ductbank and ampacity calculations.



TYPICAL MULTIPLE DUCTBANK DETAIL 3 / UP302

NTS

NOTES:

1. Trench width to be determined by HECO based on number and size of conduits required for each of the ductbanks and ampacity calculations.
2. For city roadways, minimum depth of 3'-0" for the distribution ductbank may be reduced on a case-by-case basis.
3. The electrical distribution ductbank may contain communication ducts. Provide 3" separation between ducts of different systems.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Approved: P Uyeda
Date: 09-11-09

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PEARL HIGHLANDS STATION

ELECTRICAL & COMMUNICATIONS 138KV & 46KV THERMAL BACKFILL DETAILS

Contract No.: SV-245
CADD File: SC4-D03-UP302
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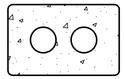
SECTION A UP303
NTS



SECTION B UP303
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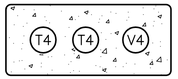

SECTION C UP303
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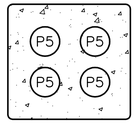
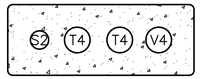


SECTION D UP303
NTS

(Section D1 similar except four ST5 conduits per detail 2/UP302)

(Section D2 similar except four P4 conduits)

(Section D3 similar except two T4 and two S2 conduits)



SECTION D4 UP303
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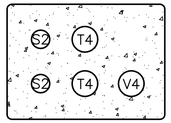

SECTION E UP303
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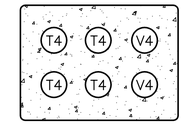
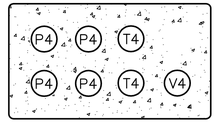


SECTION F UP303
NTS

(Section F1 similar except four P5 and two V4 conduits)



SECTION G UP303
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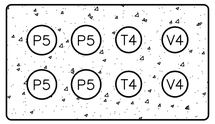

SECTION H UP303
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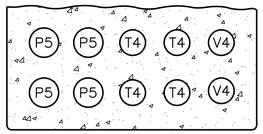

SECTION J UP303
NTS

DUCT SECTION LEGEND

NTS

P5

"P" – Primary electric (12kV) — Conduit size
"ST" – Sub–Transmission (46kV)
"S" – Secondary electric
"TS" – Traffic signal
"T" – Telephone
"V" – CATV
"SL" – Highway lighting

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

DUCT SECTION DETAILS

Contract No.: SV–245
CADD File: SC4–D03–UP303
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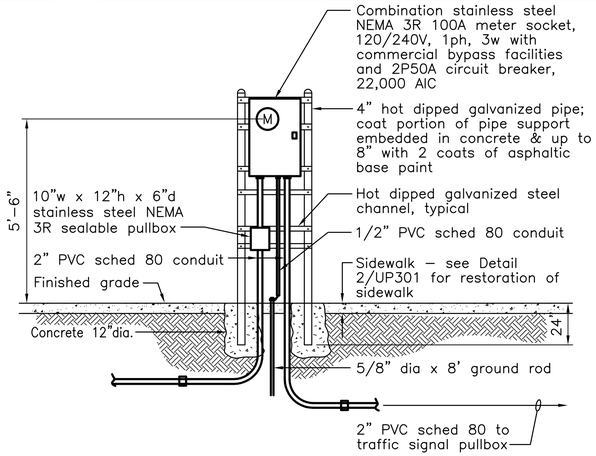
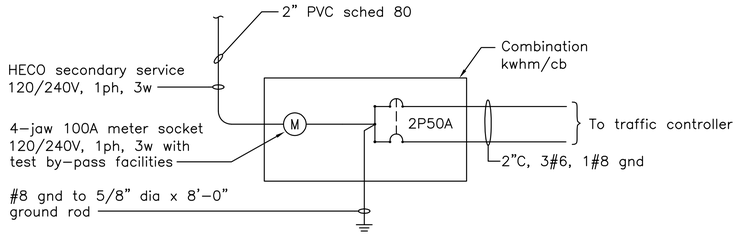
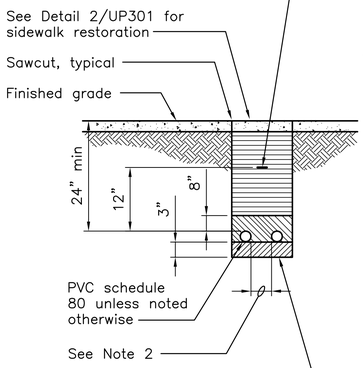


TRAFFIC SIGNAL METER PEDESTAL DETAIL 1
NTS — UP304



TYPICAL ONE-LINE DIAGRAM 3
NTS — UP304



Traceable warning tape with "caution-electric/communications cable below" imprinted on tape. Warning tape shall be placed over entire length of ductline [traceable electrical warning marker tape in accordance with HECO Specification M0302]

Backfill:

Type "A": Either material conforming to the requirements of the City and County of Honolulu standard specification for Public Works construction, dated September 1986, Section 16 – "borrow", or non-contaminated native soil material which does not contain more than 50% gravel, and also, does not contain hard lumps of earth 3 inches in greatest dimension, rocks larger than 3 inches in largest dimension, highly plastic clay, poorly-graded sand and gravel (classified as sp and gp using the united soil classification system), organics, debris, or other unsuitable or deleterious materials.

Type "B": Select granular material passing a one (1) inch sieve such as three-quarter (3/4) inch aggregate base course gravel, S4C or material that is free of organics, debris or highly-plastic clay and meets the following gradation:

Sleeve Size	Percent Passing By Weight
1"	100
3/4"	90 – 100
No. 4	35 – 100
No. 40	10 – 30
No. 200	3 – 15

NOTE: If the normal material in bottom of trench is not Type "B", an additional 3" shall be excavated and Type "B" backfill shall be provided.

TYPICAL DUCT SECTION (DIRECT BURIED) 2
NTS — UP304

NOTES:

1. Where trench encounters existing concrete or asphalt concrete, surface shall be sawcut. Backfill, compact and patch surface to match adjacent area. See trench restoration detail.
2. Provide 6" separation between ducts of same system and 12" separation between ducts of different systems.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Date: 09-11-09

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PEARL HIGHLANDS STATION

ELECTRICAL & COMMUNICATIONS TRAFFIC SIGNAL INSTALLATION DETAILS

Contract No.: SV-245
CADD File: SC4-D03-UP304
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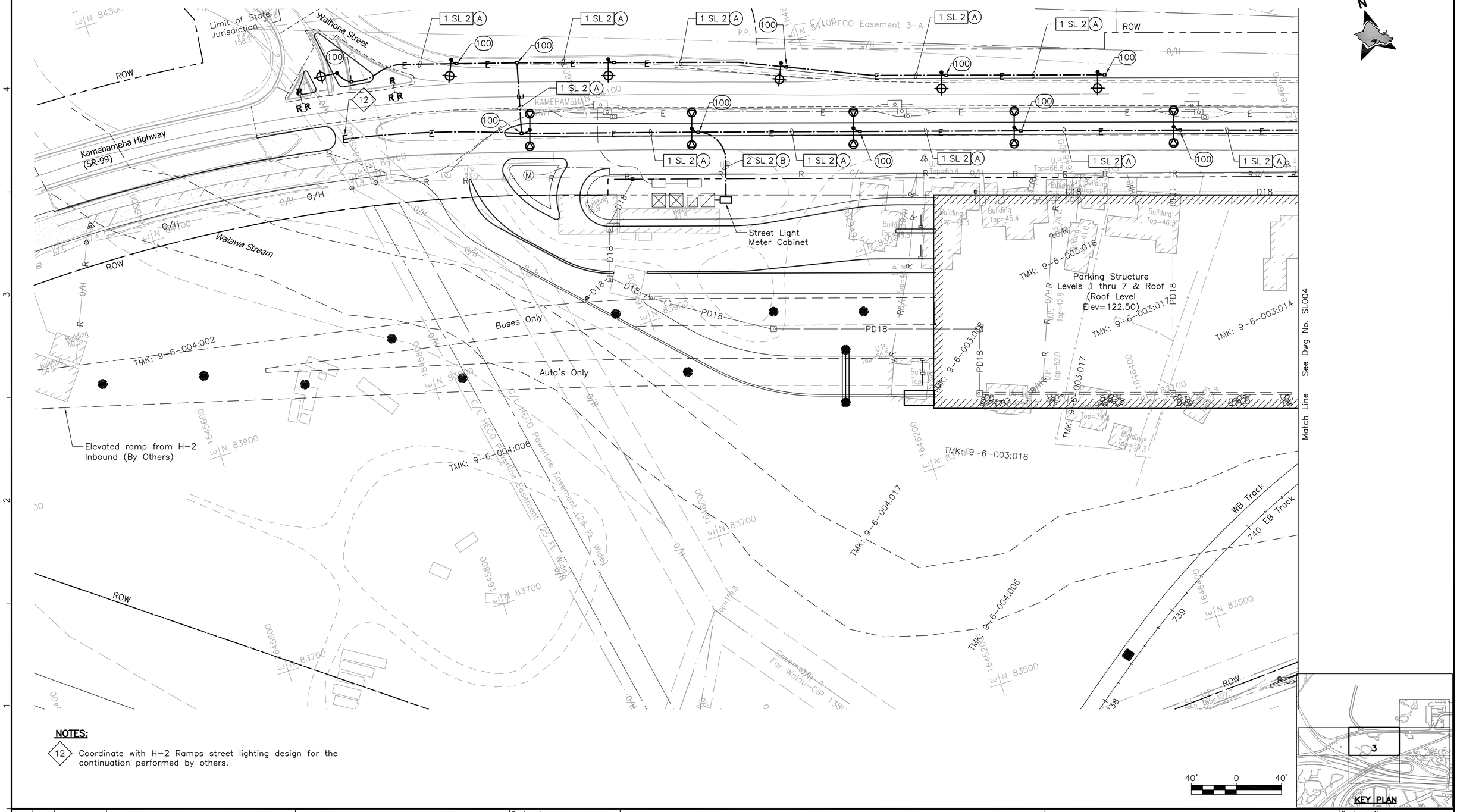

NOTES:

12 Coordinate with H-2 Ramps street lighting design for the continuation performed by others.

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PEARL HIGHLANDS STATION

UTILITY RELOCATION PLAN STREET LIGHTING

SHEET 1 OF 2

Contract No.: SV-245
CADD File: SC4-D04-SL003
Drawing No: SL003 Rev.
Scale: 1"=40'
Page No. 73 of 180

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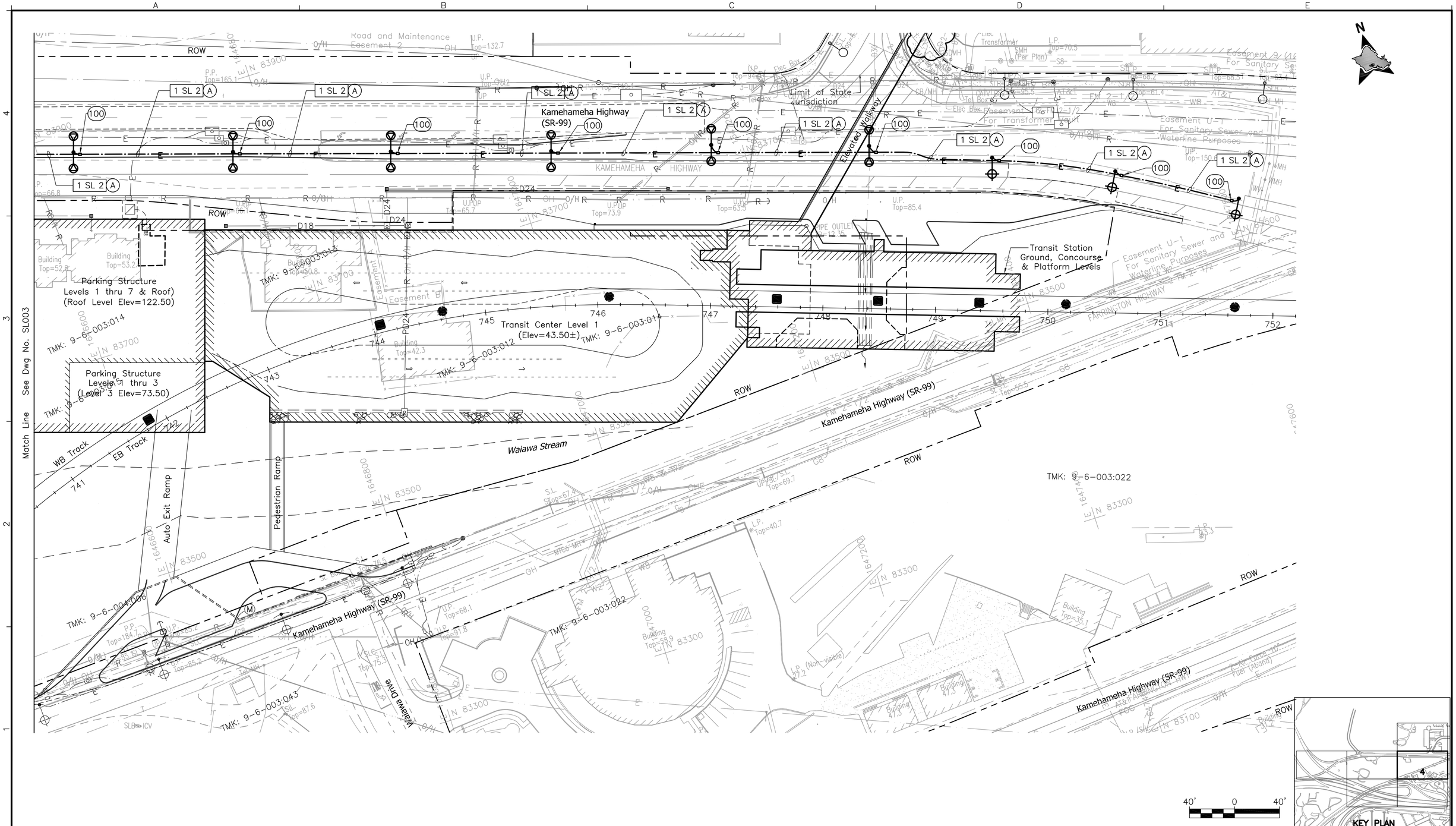

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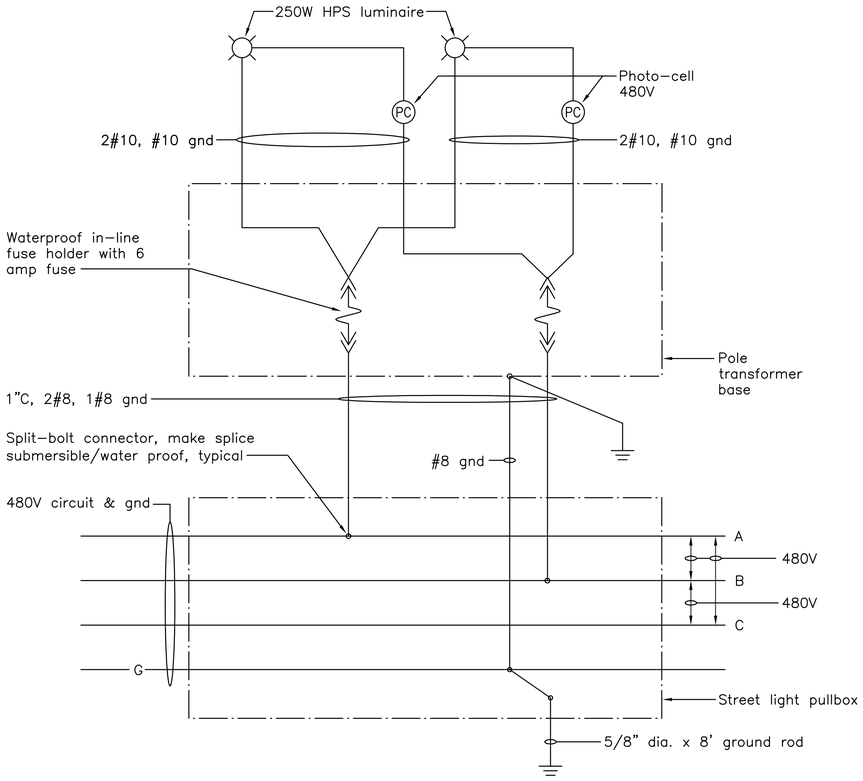
PEARL HIGHLANDS STATION

UTILITY RELOCATION PLAN STREET LIGHTING

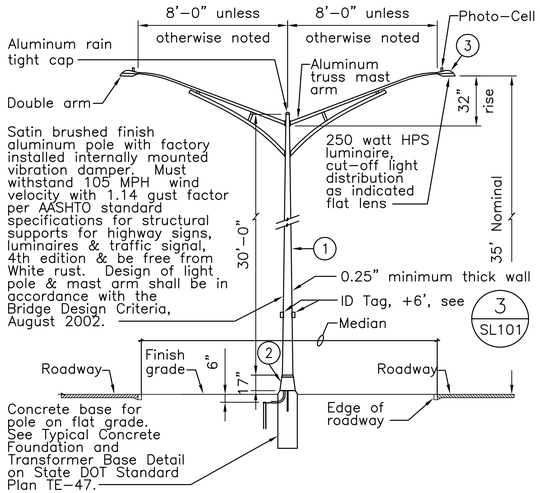
SHEET 2 OF 2

Contract No.: SV-245
CADD File: SC4-D04-SL004
Drawing No: SL004
Rev.
Scale: 1"=40'
Page No. 74 of 180



TYPICAL STREET LIGHT WIRING DIAGRAM (3 PHASE SOURCE) 1 SL101

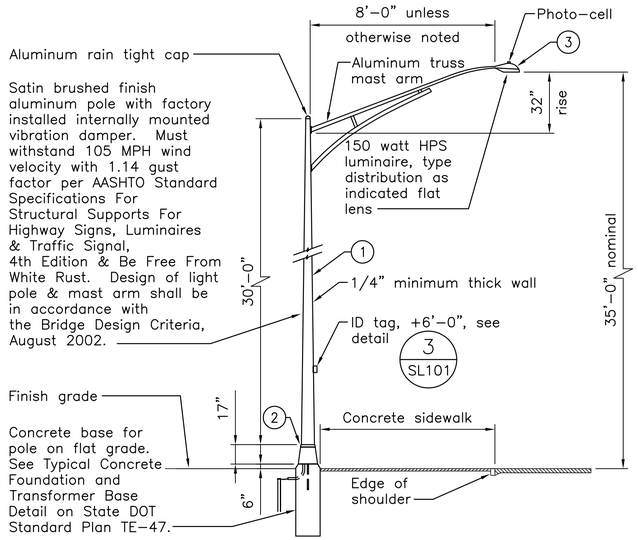
NTS



STREET LIGHT STANDARD DETAIL 2 SL101

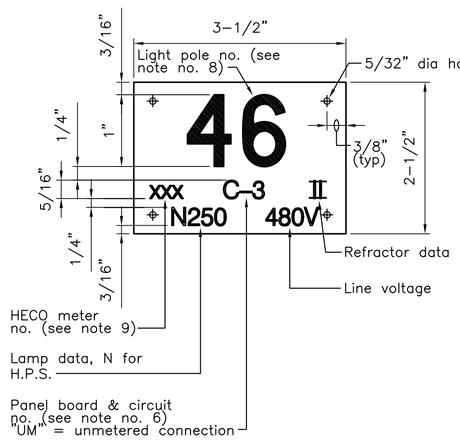
NTS

MATERIAL LIST		
Item	Description	Manufacturer
1	Light Pole, 30', Alum	
2	Transformer Base (Alum) (type as indicated)	
3	Luminaire, 250W HPS with CWA ballast	



STREET LIGHT STANDARD DETAIL 4 SL101

NTS



STREET LIGHT POLE TAG DETAIL 3 SL101

NTS

NOTES:

1. Use 3 ply laminated fllexible plastic black-white-black thickness black cap sheet-0.010", white base sheet-0.052", black base sheet-0.010".
2. Light pole number size shall be 1" high and engraved 1/8" Wide, white in color (number as required).
3. Nomenclature size shall be 5/16" high and engraved 1/32" wide, white in color (HECO meter number panel board and circuit number, line voltage, lamp data and refractor data as required).
4. Attach to aluminum and steel post with no. 8 stainless steel, 1/2" long drive screws in 1/8" drill hole. Attach to wood poles with 4D aluminum nail.
5. Numbers are inscribed by cutting through "Black Cap Sheet" to expose "White Letters."
6. Nomenclature required for systems with two or more circuits (letter indicates panel board, number indicates circuit).
7. For light poles installed on ramp, assign numbers to include ramp I.D. and light number. Legend may be less than one (1) inch in height.
8. Light numbers shall be obtained from the state. Use an alphabet suffix to designate lights mounted on the same pole (e.g. 123A & 123B).
9. For non-metered system, call out the contract number.

For use within State of Hawaii right-of-way

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Checked: P Uyeda
Approved: P Uyeda
Date: 09-11-09

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CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

STREET LIGHT STANDARD DETAILS

Contract No.: SV-245
CADD File: SC4-D04-SL101
Drawing No: SL101 Rev.
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GENERAL STRUCTURAL NOTES

1. General Specifications: Hawaii Standard Specifications for Road and Bridge Construction, 2005, together with Special Provisions prepared for this Contract.

2. Design Specifications:

   (A) AASHTO 2007 LRFD Bridge Design Specifications (4th Edition) and its subsequent interim specifications with interim supplements and modifications by the Highways Division, Department of Transportation, State of Hawaii.

   (B) State of Hawaii, Department of Transportation, Highways Division "Design Criteria for Bridges and Structures" dated April 15, 2008.

3. Loads:

   (A) Dead Load: An allowance of 25 PSF for future wearing surface of asphalt concrete has been provided for in the design.

   (B) Live Load: AASHTO HL-93 Truck Loading.

   (C) Seismic Load: Acceleration coefficient – 0.18
   Seismic Performance Zone – 2
   Importance Category – Essential
   Soil Profile – Type II

   (D) Wind Load: 105 mph. Value is a 3 second gust speed at 32.8 ft above ground for Exposure C category and is associated with an annual probability of 0.02 (50 year mean recurrence interval).

   (E) Utility Load: An allowance of 150 PLF on each side of the bridge for utility loads has been provided for in the design.

4. Materials:

   (A) All concrete strengths shall be as noted below:

Item No.	Structural Parts	Classes of Concrete	Specified Compressive Strength, f'c (28 Days)
(1)	Prestressed Concrete Girders	–	8,000 PSI
(2)	Bridge Deck, Diaphragms and End Beams, Drilled Shaft Cap Beam, and Railing (See Items 4.(B) and 4.(H))	–	6,000 PSI
(3)	Drilled Shafts	–	4,500 PSI
(4)	Abutment, Abutment Footings, Wing Walls, Wing Wall Footings, and End Posts	–	5,000 PSI
(5)	Except as noted otherwise, all others	–	4,000 PSI

   All concrete with a 28 day compressive strength of 4,000 psi or greater shall have a maximum W/C ratio of 0.45.

   (B) A shrinkage reducing admixture (SRA), Tetraguard AS20 by Master Builders or Eclipse by W.R. Grace & Co., or approved equal, shall be added to the concrete mix for the transverse beams (including diaphragms and end beams), drilled shaft cap beam, bridge deck and railing. The minimum dosage requirement shall be 128 ounces per cubic yard of concrete.

   (C) All reinforcing steel shall be ASTM A615 Grade 60 unless otherwise noted.

   (D) Reinforcing steel shall be ASTM A706 where welded connections are required.

   (E) All structural steel shall be ASTM A36 hot dip galvanized after fabrication, unless otherwise noted.

   (F) All anchor bolts, washers and nuts shall be ASTM A325 hot dip galvanized after fabrication, unless otherwise specified.

   (G) Prestressing steel shall be ASTM A416 0.5" diameter or 0.6" diameter Grade 270 low-relaxation strands.

   (H) A migrating corrosion inhibitor amine carboxylate water-based admixture shall be added to the concrete mix for the transverse beams (including diaphragms and end beams), drilled shaft cap beam, bridge deck topping, girder CIP closure joint (wet joint) and concrete cover over the post-tensioning anchorages. The minimum dosage shall be 1.5 pints per cubic yard of concrete. The admixture shall not affect the set time of the concrete.

5. Reinforcement:

   (A) The minimum covering measured from the surface of the concrete to the face of any reinforcing bars shall be as follows, except as otherwise shown:

      (1) Deck topping
         A. Top bars = 2 1/4" with tolerances of –0 inch and +3/8 inch
         B. Bottom bars = 1 1/2" except as otherwise noted.

      (2) For prestressed concrete girders = 1" to stirrups.

      (3) Abutment Walls, Wing Walls = 2" to ties or outermost reinforcing except as otherwise noted.

      (4) Approach slab top bars = 2"
      Approach slab bottom bars = 3"

      (5) Concrete cast against and permanently exposed to earth = 3"

      (6) All others unless otherwise noted = 2".

   (B) Reinforcing bars shall be detailed in accordance with the latest edition of the design specification in Note 2 unless otherwise noted.

   (C) Minimum clear spacing between parallel bars shall be 1 1/2 times the diameter of bars (for non bundled bars). In no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate or 1 1/2".

   (D) All dimensions relating to reinforcing bars are to centers of bars unless otherwise noted.

   (E) Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of intersections is less than one foot in each direction, in which case alternate intersections shall be tied.

6. Construction Notes

   (A) See Standard Specifications and Special Provisions.

   (B) Except as otherwise noted, all vertical dimensions are measured plumb.

   (C) The Contractor shall verify all site conditions and not rely upon these plans since conditions may differ from those shown.

   (D) The Contractor shall be solely responsible for the protection of adjacent properties, utilities and existing and new structures from damage due to construction. Repairing any damage shall be at the Contractor's own expense, to the satisfaction of the Engineer.

   (E) The Contractor shall verify the location of all utility lines and notify the respective owners before commencing with excavation, and any temporary piling or sheeting.

   (F) The Contractor shall verify all dimensions and site conditions and shall report any discrepancies in writing to the Engineer before commencing work or ordering materials.

   (G) For concrete finish see Standard Specifications and Special Provisions.

   (H) Construction joints may be relocated or additional ones added subject to the approval of the Engineer.

   (J) Unless otherwise noted, all exposed concrete edges shall be chamfered 3/4"x3/4".

   (K) Contractor shall verify elevations before fabricating wall reinforcing.

   (L) In general, top of concrete deck topping shall be constructed to follow the roadway vertical and horizontal curves and superelevations.

7. General:

   (A) Standard detail drawings refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: C. Miyahara
Drawn: V. Takagaki
Checked: M. Shimokawa
Approved: D. Yavorsky
Date: 09-04-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

GENERAL STRUCTURAL NOTES
EXIT RAMP

Contract No.: SV-245
CADD File: SC4-G01-SG001
Drawing No: SG001 Rev.
Scale: N/A
Page No. 76 of 180

2009-09-11 4:00 PM Z:\2008\80016-HNL HI CAP TRANST CORR\08 Structural\09-11-09 100% CONCEPT EMAILD FILES\SC4-G01-SG001.dwg

STRUCTURAL ABBREVIATIONS

&	And
@	At
ø	Diameter
≥	Greater Than or Equal to
≤	Less Than or Equal to
#	Number
AB	Anchor Bolt
Abbr	Abbreviation
Abut	Abutment
AC	Asphalt Concrete
Add.	Added
Addl	Additional
Alt	Alternate
Approx	Approximate
Az	Azimuth
Bal	Balance
Bet	Between
BF	Both Faces, Back Face
BFE	Bottom of Footing Elevation
Bk	Back
℄	Baseline
Blt	Bolt
Bm	Beam
Bot, B	Bottom
Br	Bridge
Brng, Brngs	Bearing, Bearings
BVC	Beginning of Vertical Curve
BW	Both Ways
Cant	Cantilever
C–C	Center to Center
CF	Cubic Feet
CG	Center of Gravity
cgs	Center to Gravity of Strands
CIP	Cast–in–Place
CJ	Construction Joint, Control Joint
℄	Centerline
Cl	Class
Clr	Clearance
CLSM	Controlled Low Strength Material
Col	Column
Conc	Concrete
Conn	Connection
Const	Construction
Cont	Continuous
CY	Cubic Yard
Dbl	Double
Det	Detail
Dia	Diameter
Diaph	Diaphragm
Dim	Dimension
Dist	Distance
DI	Drainage Inlet, Ductile Iron
Dn	Down
DO	Ditto
Dwls	Dowels
DS	Drilled Shaft
Dwg, Dwgs	Drawing, Drawings

E	East, Expansion
ea	Each
EF	Each Face
EFH	Each Face Horizontal
EFV	Each Face Vertical
EJ	Expansion Joint
El	Elevation
Elec	Electrical
Emb	Embankment
Embed	Embedded, Embedment
EMH	Electrical Manhole
EP	Edge of Pavement
EPS	Expanded Polystyrene
Eq	Equal
Est	Estimated
EVC	End of Vertical Curve
EW	Each Way
Exc	Excavation
Excl	Excluding
Exist	Existing
Exp	Expansion
Ext	Exterior
F	Fixed
F'c	Specified Strength of Concrete
F'ci	Strength of Concrete at Time of Initial Prestress
FA	Force Account
FB	Flat Bar
FF	Far Face Front Face
Fig	Figure
FG	Finish Grade
ft	Feet, Foot
Ftg	Footing
Ga	Gauge
Galv	Galvanized
GFRP	Glass Fiber Reinforced Polymer
Grd	Grade
Gnd	Ground
GRP	Grouted Rubble Pavement
H	Hinge, Horizontal
HECO	Hawaiian Electric Company
HS	High strength
Ht	Height
IB	Inbound
ID	Inside Diameter
IF	Inside Face
in	Inch
Int	Interior
Inv	Invert
Jt	Joint
K	Kip
KF	Kip Foot
KLF	Kips Per Linear Foot
KSF	Kips Per Square Foot
KSI	Kips Per Square Inch

L	Length
LB	Pound
LF	Linear Feet/Foot
Long.	Longitudinal
LS	Lump Sum
Ltg Std	Lighting Standard
M	Modified
Max	Maximum
Mech	Mechanical
MH	Manhole
Min	Minimum
Misc	Miscellaneous
MPH	Miles Per Hour
N	North
NF	Near Face
NIC	Not in Contract
No	Number
NTS	Not to Scale
OB	Outbound
OC	On Center
OD	Outside Diameter
Opng	Opening
OS	Offset
PB	Pull Box
PC	Point of Curvature
PCC	Portland Cement Concrete
PCF	Pounds per Cubic Foot
P(e)	Effective Prestressing Force
Perf	Perforated
PI	Point of Intersection of Tangents
PIVC	Point of Intersection of Vertical Curve
ℙ	Plate
PLF	Pounds per Linear Foot
PP	Precast Plank
PRC	Point of Reverse Curve
Prestr	Prestressed
PSF	Pounds per Square Foot
P/S	Prestressed Strands
PSI	Pounds per Square Inch
Pt(s)	Point(s)
PT	Point of Tangency, Post Tensioned
PVC	Polyvinyl Chloride
Q	Flow Rate
R	Radius
Rdwy	Roadway
Ref	Reference
Reinf	Reinforced, Reinforcing, Reinforcement
Reqd	Required
Ret	Retaining
RF	Rear Face
ROW	Right–of–Way

S	South
SDMH	Storm Drain Manhole
SE	Super Elevation
Sect	Section
SF	Square Feet
Sht	Sheet
Sl	Slope
Spa.	Spaces, Spacing
Sprd	Spread
Spec	Specification
SS	Stainless Steel
Sta	Station
Std	Standard
Stagg	Staggered
Stiff	Stiffener
Stirr	Stirrup
Str	Straight
Str	Structure
SY	Square Yard
Sym	Symmetrical
T	Top
T&B	Top and Bottom
Tan	Tangent
Temp	Temporary
TFE	Top of Footing Elevation
Thk	Thick
TOD	Top of Deck
Tot	Total
Transv	Transverse
TS	Structural Tubing
Typ	Typical
Undergrd	Underground
UNO	Unless Noted Otherwise
V	Vertical
Var	Varies
VC	Vertical Curve
W	West
w/	With
W/C	Water/Cement Ratio
WP	Work Point
WS	Water Surface
WW	Wing Wall
WWF	Welded Wire Fabric
Yr	Year

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: N/A
Drawn: V. Takagaki
Checked: M. Shimokawa
Approved: D. Yavorsky
Date: 09–04–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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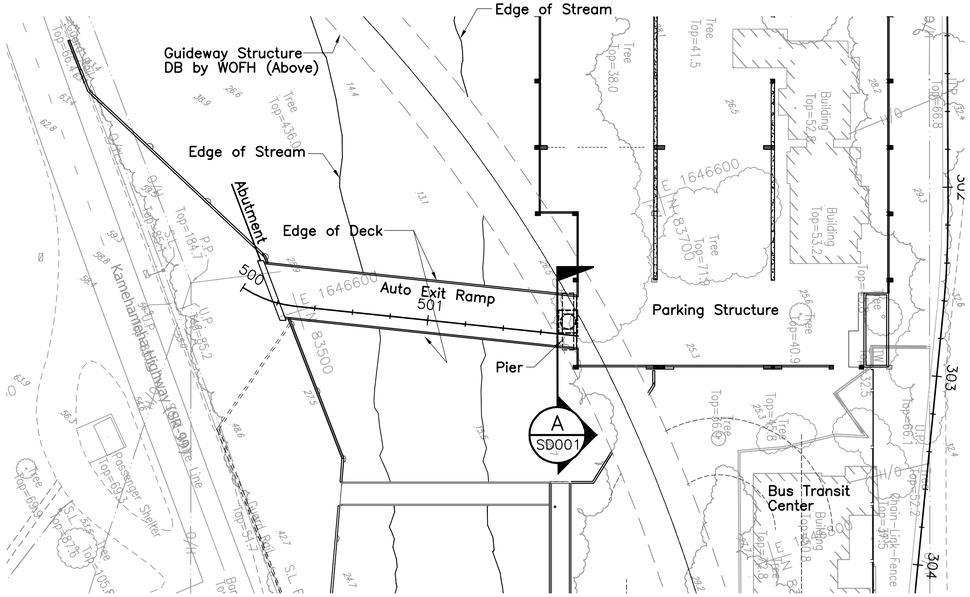
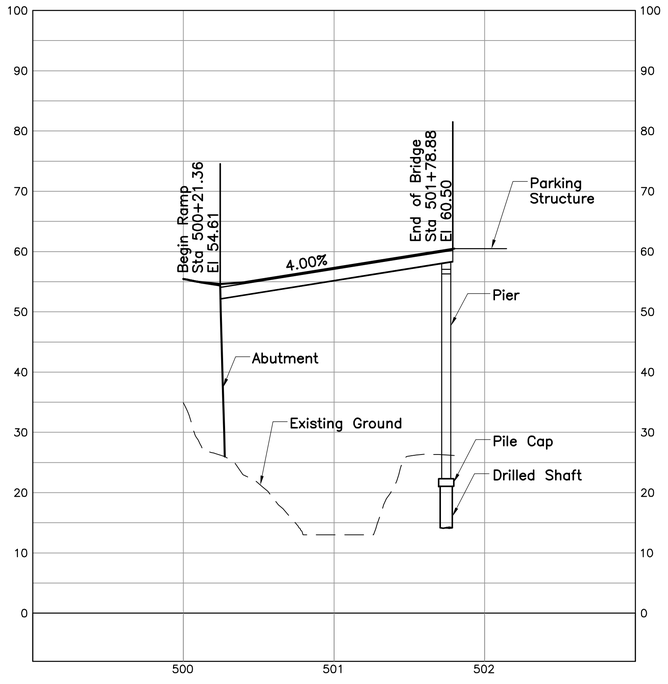
PEARL HIGHLANDS STATION

STRUCTURAL ABBREVIATIONS
EXIT RAMP

Contract No.: SV–245
CADD File: SC4–G01–SG002
Drawing No: SG002 Rev.
Scale: N/A
Page No. 77 of 180

2009–09–11 4:01 PM Z:\2008\80016–HNL HI CAP TRANST CORR\08 Structural\09–11–09 100% CONCEPT EMAILD FILES\SC4–G01–SG002.dwg





Vertical 10' 0 10'

Horizontal 40' 0 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: C Miyahara
Drawn: V Takagaki
Checked: M. Shimokawa
Approved: D. Yavorsky
Date: 09-04-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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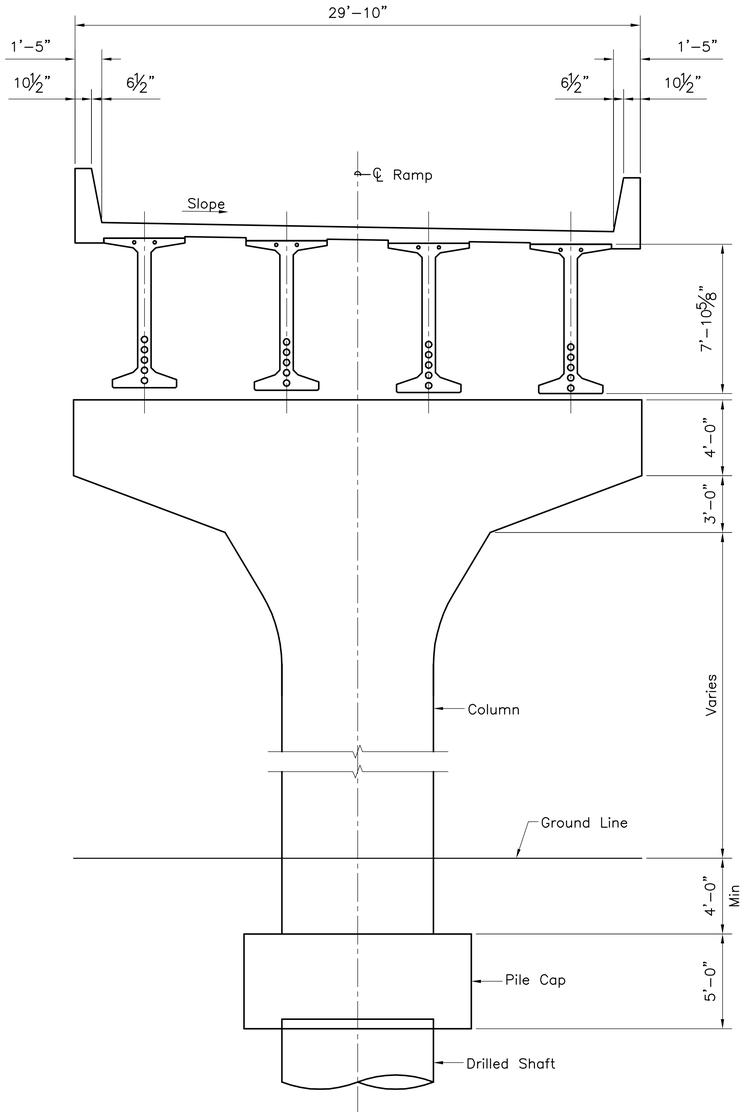
PEARL HIGHLANDS STATION

PLAN AND ELEVATION EXIT RAMP

Contract No.: SV-245
CADD File: SC4-G04-GP001
Drawing No: GP001 Rev.
Scale: 1"=40' H, 1"=10' V
Page No. 78 of 180

2009-09-11 4:02 PM Z:\2008\80016-HNL HI CAP TRANST CORR\08 Structural\09-11-09 100% CONCEPT EMAILD FILES\SC4-G04-GP001.dwg



DECK SECTION G1 GIRDERS (A SD001 GP001)

Scale: 1/4" = 1'–0"

1' 0 2' 4' 8'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: C. Miyahara
Drawn: V. Takagaki
Checked: M. Shimokawa
Approved: D. Yavorsky
Date: 09–04–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
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PEARL HIGHLANDS STATION

TYPICAL SECTION
EXIT RAMP

Contract No.: SV–245
CADD File: SC4–G09–SD001
Drawing No.: SD001 Rev.
Scale: 1/4" = 1'–0"
Page No. 79 of 180

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GENERAL

1. All work shall conform to the 2006 International Building Code (IBC) with the City and County of Honolulu Amendments unless noted otherwise.
2. The Contractor shall verify all dimensions and conditions prior to the start of the job and notify all discrepancies to the City. Where actual dimensions/conditions relative to existing structures conflict with the drawings, they shall be reported to the City so that proper clarification may be made.
3. All work shall conform to the best practice prevailing in the various trades comprising the work.
4. Features of construction shown are typical, and they shall apply generally throughout for similar conditions. Modify typical details as directed to meet special conditions.
5. Specific notes and details shall take precedence over general notes and typical details.
6. The Contractor shall refer to the specifications and technical provisions for information not covered by these general notes or the structural drawings.
7. The Contractor shall refer to the architectural, electrical, mechanical and utility drawings for conditions, depressions, openings, items to be embedded or attached to structural elements, etc., not shown on the structural drawings.
8. The Contractor shall provide temporary erection bracing and shoring for all structural members as required for stability of the structure during all phases of construction. The Contractor shall be responsible for all shoring.
9. The Contractor shall take all steps necessary to insure the correct location and orientation of the structure.
10. The Contractor shall protect and shield from damage all existing structures and elements adjacent to and surrounding the construction work. Existing elements damaged by the Contractor's operation shall be repaired to its original condition or replaced at no added cost.

FOUNDATION

1. The Designer shall engage the services of a Hawaii licensed geotechnical engineer to perform subsurface exploration, investigation, testing, and analyses for the design and construction of the foundations of the indicated buildings and structures.
2. All earthwork shall be performed in accordance with the above–mentioned recommendations. All foundation excavations shall be observed and approved by a Hawaii licensed geotechnical engineer prior to placement of reinforcement and concrete. All structural fill material (both onsite and imported) shall be reviewed and approved by the geotechnical engineer.
3. The Contractor shall provide for dewatering of excavations from surface water, ground water or seepage.
4. The Contractor shall be responsible for design and installation of all cribbing, sheeting, and shoring necessary to preserve excavations and earth banks.
5. Footings shall bear on undisturbed in–situ firm soil or on properly compacted fill. Bottom of footings shall be compacted to provide a firm, level and smooth bearing surface prior to placement of reinforcing steel and concrete. If soft and/or loose materials are encountered at the bottom of footing excavations, they shall be over–excavated to expose the underlying firm materials. The over excavation shall be backfilled with "lean concrete" or with structural fill compacted to a minimum of 95% relative compaction; or the footing bottom may be extended down to the underlying competent material.
6. All building slabs–on–grade shall be underlain by a 6–inch layer of aggregate subbase compacted to a minimum of 95% relative compaction.
7. All building slabs–on–grade receiving moisture sensitive flooring material shall be protected by a 15 mil vapor barrier, placed directly upon the compacted aggregate subbase.
8. The Contractor shall brace or protect all walls below grade from lateral earth pressures until attaching floor supporting members are completely in–place and have attained their full design strength.

STRUCTURAL CONCRETE

1. The design and construction of structural concrete shall conform to the "Building Code Requirements for Structural Concrete", ACI 318–05, including the following:
   A. Concrete mixing..... ASTM C94
   B. Concrete placement..... ACI 304
2. Materials shall conform to the following standard specifications, current edition:
   A. Portland cement..... ASTM C150, Type I or II
   B. Normal weight aggregates..... ASTM C33
   C. Air entraining admixture..... ASTM C260
   D. Water–reducing and retarding admixtures..... ASTM C494
3. Verify locations and dimensions of slots, anchors, ducts, etc., relating to mechanical, electrical and architectural work before pouring concrete.
4. All inserts, anchor bolts, plates, etc. embedded in concrete shall be hot–dipped galvanized unless noted otherwise.
5. All concrete shall be thoroughly consolidated during placement using a mechanical vibrator. All concrete shall be cured for a period of not less than 7 days.
6. Unless otherwise indicated on architectural drawings, provide exposed corners of beams, walls columns, etc. with 3/4" chamfers.
7. Notify the City three (3) working days prior to any concrete pour. No concrete shall be poured prior to observation by the City or its authorized representative.
8. Unless otherwise specified, concrete shall have a minimum 28–day compressive strength as follows:
   A. Sidewalks..... 2,500 PSI
   B. Floor Slab on Grade..... 3,000 PSI
   C. Footings, Grade Beams & Piers..... 3,000 PSI
   D. Walls (incl precast or Tilt–up concrete)..... 3,000 PSI
   E. Columns..... 4,000 PSI
   F. Suspended Slabs and Beams..... 4,000 PSI
   G. Concrete Fill on Metal Deck..... 3,000 PSI
   H. All Others..... 3,000 PSI
   I. Site Retaining Walls..... See wall schedule
9. For walks and slabs on grade, the concrete shall be designed such that the water–cement ratio does not exceed 0.50 by weight. For concrete fill on metal deck and suspended slabs, the water–cement ratio shall not exceed 0.45 by weight.

DESIGN CRITERIA

1. The structural design shall be based on the provisions of the International Building Code (IBC), 2006 Edition, as amended by the City and County of Honolulu.
2. The structural design shall comply with the applicable provisions of Section 9.0 – Structural and Section 23.0 – Fire/Life Safety of the HHCTCP Design Criteria.
3. Design loads:
   A. Dead loads = actual weight calculated using the material unit weights specified in Section 9.2 of the HHCTCP Design Criteria.
   B. Live loads = loads as specified in Sections 9.3 and 9.4 of the HHCTCP Design Criteria.
   C. Vehicle, crane, equipment loads = as noted on the drawings
4. Wind design data:
   A. Design effective wind speed..... 105 MPH
   B. Exposure..... C
   C. Importance factor..... 1.0
5. Seismic design data:
   A. Occupancy Category II
   B. Importance factor = 1.25
   C. Site class = C
   D. Mapped spectral response accelerations:
      * Ss = 0.60
      * Sl = 0.17
   E. Design spectral response acceleration:
      * Sds = 0.46
      * Sd1 = 0.18
   F. Seismic Design Category = C

CONCRETE TOPPING ON METAL DECK

1. Concrete topping shall not contain calcium chloride or admixtures containing calcium chloride.
2. Electrical conduits are not allowed to be embedded in concrete topping on metal deck without prior approval of the Design Engineer.
3. Connection bolts in composite floor beams shall be finger tightened only, until 72 hours after the concrete topping has been poured. At 72 hours, the bolts shall be tightened per AISC requirements.
4. The ceramic ferrule, if used to install the headed shear studs, must be removed for inspection. Under no circumstances is the ferrule to be left on any headed stud embedded in concrete topping.
5. Concrete topping shall be placed over beams first before pouring at midspan of the decking.
6. Concrete must be placed with care to avoid impacts by dropping or dumping. Buggies will not be allowed to transport and deposit concrete unless the runway is planked and the floor deck is adequately shored.
7. Pour joints across the deck shall be placed in the middle third of the bay span. Pour joints parallel to the deck shall be placed 3'–0" plus or minus from the girder line.

PRECAST CONCRETE (TILT–UP) WALL PANELS

1. The design, fabrication, transportation and erection of precast concrete (Tilt–up) wall panels shall be in accordance with Chapter 16 of the "Building Code Requirements for Structural Concrete (ACI 318–05)", and with "Tilt–Up Concrete Construction Guide", ACI 551.1R–05.
2. The Contractor shall submit shop drawings of panels showing dimensions, reinforcing, pick–up points, strong back locations, bracings, additional reinforcing for temporary lifting and bracing, and calculations showing erection stresses, stamped and signed by a structural engineer licensed in the State of Hawaii.
3. The Contractor shall verify all dimensions, openings in walls, and details prior to forming and pouring.
4. The Contractor shall be responsible for properly embedding all necessary plates, anchor bolts, inserts for dowels and anchor bolts, etc. Shown on the contract drawings. Anchor bolts shall not be substituted with expansion anchors unless approved by the City.
5. Panels shall not be lifted until concrete has cured for at least 7 days and has gained the compressive strength specified at lifting by the structural engineer responsible for preparing shop drawings or 3,000 PSI, whichever is greater. The Contractor shall make additional cylinders for each pour and field cure to be tested the day before lifting in order to make sure that the required compressive strength is reached. No panel shall be lifted before it has cured for 7 days.
6. Weld structural steel embed plates in accordance with ANSI/AWS D1.1. Welding of reinforcing bars shall be in conformance with ANSI/AWS D1.4. Rebars to be welded shall conform to ASTM A 706, grade 60.
7. In case the Contractor decides to cast panels stacked one above the other due to field conditions, he shall inform the City before proceeding with the work. Provide inserts in stacked panels for all rebar dowels and anchor bolts.
8. Panels more than one story high shall be braced at each floor level. In case the intermediate braces have to be removed due to field conditions, the Contractor shall submit plans for rebracing panels to the City for review and approval prior to removal of braces.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: J Fujita
Drawn: J Tamanaha
Checked: K Hayashida
Approved: E Sugiyama
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

For reduced prints, original page size in inches: 0 1 2 3 4

PEARL HIGHLANDS STATION

GENERAL STRUCTURAL NOTES

SHEET 1 OF 2

Contract No.: SV–245
CADD File: SC4–G01–SG003
Drawing No: SG003 Rev.
Scale: N/A
Page No. 80 of 180

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REINFORCING STEEL

1. All reinforcing steel shall be deformed bars conforming to ASTM A 615 Grade 60, except ties and stirrups smaller than #4 which may be grade 40. All reinforcing steel to be welded shall conform to ASTM A 706 Grade 60.
2. Plain steel welded plain wire fabric shall conform to ASTM A 185, fabricated from as–drawn steel wire into flat sheets and galvanized.
3. Minimum concrete protection (cover) for reinforcement shall be provided in conformance with Chapter 7 of ACI 318–05.
4. Development and splices of reinforcement shall be in conformance with Chapter 12 of ACI 318–05.
5. Welding of reinforcing steel bars shall conform to "Structural Welding Code–Reinforcing Steel", AWS D1.4.
6. Bolster and support bars for slab and topping reinforcement (including slabs on grade) shall be a minimum of #4 at 36" o.c.
7. Before placing of concrete, reinforcement placement shall be inspected to insure conformance with the drawings. All discrepancies shall be corrected prior to concrete pour or grouting.

STRUCTURAL STEEL AND MISCELLANEOUS IRON

1. The design, fabrication and erection of structural steel shall be in accordance with the "Specifications for Structural Steel Buildings", AISC 360–05. Seismic design of steel structures shall be in accordance with the "Seismic Provisions for Structural Steel Buildings", including Supplement No.1 dated 2006, AISC 341–05.
2. W–shapes shall conform to ASTM A 992 (Fy = 50 ksi). All steel plates, bars, and other shapes shall comply with ASTM A 36 unless noted otherwise. Structural pipe shall conform to ASTM A 53, Grade B. Round HSS shall conform to ASTM A 500, Grade B, (Fy = 42 ksi). Rectangular and square HSS shall conform to ASTM A 500, Grade B (Fy = 46 ksi). All exposed steel members and assemblies shall be hot–dip galvanized after fabrication in accordance with ASTM A 123.
3. Common bolts shall comply with ASTM A 307, hot–dip galvanized per ASTM A 153.
4. High strength bolts shall comply with ASTM A 325N or A 325SC (where noted), Galvanized. Nuts shall conform to ASTM A 563, galvanized. Washers shall conform to ASTM F 436, Galvanized.
5. Anchor rod material shall conform to ASTM F 1554, Grade 36 (Grade 55 or 105 where noted), hot–dip galvanized, per ASTM A 153.
6. Shear stud connectors shall be as specified in AWS D1.1–04, Chapter 7, Type B made from ASTM A 108 material (Fu = 60 ksi).
7. All welds shall be arc welded, matching the electrode to the base steel, according to AWS standards and performed by certified welders. All welds shall be ground smooth and painted with 2 coats of Z.R.C. cold galvanizing compound.
8. Unless otherwise indicated, all steel joints not detailed shall be fully welded using minimum fillet welds per AISC.
9. Shop drawings shall be submitted to the City for all structural steel, fabricated brackets hardware and miscellaneous metals prior to fabrication.
10. All anchor plates embedded in concrete shall be hot–dip galvanized after fabrication.

STEEL JOISTS

1. The design, manufacture and installation of open web steel joists and joist girders shall be in accordance with the following Steel Joist Institute (SJI) specifications:
   a. Standard specifications for joist girders, JG–1.1–05
   b. Standard specifications for open web steel joists, K–series, K–1.1–05
   c. Standard specifications for longspan steel joists, LH series and deep longspan steel joists, DLH series, LH/DLH 1.1–05
2. Joist manufacturer shall provide all bridging and blocking, both permanent and erection. Shop drawings and design calculations stamped by a licensed Hawaii Structural Engineer shall be submitted to the City for approval two weeks prior to fabrication.
3. All roof joists, joist girders and bridging shall be designed for the net wind uplift pressures in accordance with the requirements of the 2006 International Building Code (IBC).
4. Roof joist design loads:
   Dead load.....Actual weight of roof system
   Additional (equipment) loads.....See roof framing plans (it shall be the responsibility of the Designer to verify the weight of all mechanical equipment.)
   Live load.....20 psf––unless noted otherwise
5. Floor joists design loads:
   Dead load.....Actual weight of floor system
   Live load.....As noted on the drawings
   Additional (equipment) loads.....See floor framing plans (It shall be the responsibility of the Designer to verify the weight of all mechanical equipment.)
6. Live load deflection limits:
   Floor.....Not to exceed L/360
   Roof.....Not to exceed L/360

COLD–FORMED LIGHT GAUGE STRUCTURAL STEEL FRAMING

1. The design, fabrication, installation and construction of cold–formed light gauge structural and non–structural steel framing shall be in accordance with the "North American Specification For Design of Cold–Formed Steel Structural Members", including 2004 Supplement, NAS–01 and the following American Iron and Steel Institute (AISI) standards:
   a. Standard for Cold–Formed Steel Framing – General Provisions, General–04
   b. Standard for Cold–Formed Steel Framing – Header Design, Header–04
   c. Standard for Cold–Formed Steel Framing – Truss Design, Truss–04
   d. Standard for Cold–Formed Steel Framing – Wall Stud Design, WSD–04
2. All light gauge structural steel members, plates and angles shall be hot dip galvanized. (Minimum G90 coating) per ASTM A 924.
3. All light gauge structural steel framing members shall be cold formed to shapes from structural quality sheet steel complying with the requirements of ASTM A 1003, Grade 50 for 14 and 16 gauge members; Grade 33 for 18 thru 26 gauge members.
4. Shop drawings shall be submitted to the City for all fabricated connections and hardware prior to fabrication.
5. Structural calculations and shop drawings stamped by a Structural Engineer licensed in the State of Hawaii shall be submitted for review to the City for all pre–engineered framing, including trusses prior to fabrication.
6. Fasteners shall be self–piercing and self–drilling, power–driven screws intended for cold formed steel application and shall be zinc plated or galvanized.
7. All welding shall be done in accordance with "Structural Welding Code", AWS D1.1 and "Structural Welding Code Sheet Steel", AWS D1.3 for sheet steel and performed by certified welders.
8. The Contractor shall be responsible for temporary bracing of all light metal structural framing including trusses.
9. Each joist, rafter, truss and structural wall stud shall be aligned vertically so that the distance between the web of the horizontal framing member to the edge of the wall stud does not exceed 1/8 inch (3 mm), unless otherwise indicated in the drawings.

METAL DECKING

1. Steel sheets for roof and composite floor metal deck and accessories shall conform to ASTM A 653, with minimum yield strength of 38 ksi. Decks shall be galvanized in accordance with ASTM A 653, G90.
2. Decking shall be continuous for 2 or more spans, where applicable, and bear on supports a minimum of 2 inches. Ends of roof deck units shall be lapped a minimum of 2 inches over supports.
3. Metal floor deck units shall be fastened to supporting structural steel members with ½–inch effective diameter puddle welds. If studs are welded through the deck to the structural steel, stud welds may replace the puddle welds. Use of powder actuated mechanical fasteners (PAMF) may be considered provided the manufacturer's information of the mechanical fastener includes an ICC–ES Legacy Report.
4. Roof deck units shall be fastened to supporting structural steel members with ½–inch effective diameter puddle welds or with ICC–ES approved powder actuated mechanical fasteners.
5. Rectangular or circular openings in metal deck shall be reinforced as shown.
6. Shop drawings showing the deck unit layout and fastener locations, manufacturer's brochures and ICC–ES Legacy Report shall be submitted to the Architect for approval.
7. Welding of metal deck to structural steel members shall conform to AWS D1.1 and AWS D1.3. Welders shall be certified prior to commencing work.
8. Construction loads (including those due to storage of construction materials) shall not exceed the design live load of the roof or floor system.

CONCRETE MASONRY UNIT

1. The design, construction and quality of masonry structures shall be in accordance with the "Building Code Requirements for Masonry Structures", ACI 530 – 05.
2. Hollow concrete masonry units: ASTM C 90, Grade N, 1,900 psi compressive strength, medium weight. Units shall be 2–core type, 8" nominal height, 16" nominal length and width indicated on the plans.
3. Mortar and grout materials:
   a. Portland Cement: ASTM C 150, Type I or II
   b. Masonry Cement: ASTM C 91
   c. Mortar Cement: ASTM C 1329
   d. Aggregate for Mortar: ASTM C 144
   e. Aggregate for Grout: ASTM C 404, with grading per ASTM D 448, No. 10
   f. Hydrated Lime: ASTM C 207, Type S
   g. Plasticizer Additive: Powder or liquid type with current ICC acceptance as a substitute for lime in mortar.
   h. Water: Potable and complying with ASTM C 94.
4. Mortar shall be ASTM C 270 Type 'M' or 'S' with a minimum 28–day compressive strength of 1,800 psi for Type S and 2,5000 psi for Type M. Use mortar within 2 hours after initial mixing.
5. Grout (fine) shall be proportioned to attain a 28–day compressive strength of 2,500 psi and a slump between 8 and 11 inches. Grout shall be placed within 90 minutes after mixing.
6. Reinforcing bar positioners: Commercial, non–metallic positioners that prevent displacement of reinforcing bars during construction. Install at intervals not exceeding 8 feet.
7. Fill all cells solid with grout. No grouting shall commence prior to inspection by the Engineer or Special Inspector.
8. Unless noted otherwise, all walls shall be constructed in running bond.
9. Post–installed anchors in grouted masonry: corrosion–resistant anchors with capacity to support design shear and tension loads with a factor of safety of at least 4.0 as documented in a current ICC legacy report.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Drawn: J Tamanaha
Checked: K Hayashida
Approved: E Sugiyama
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

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PEARL HIGHLANDS STATION

GENERAL STRUCTURAL NOTES

SHEET 2 OF 2

Contract No.: SV–245
CADD File: SC4–G01–SG004
Drawing No.: SG004 Rev.:
Scale: N/A
Page No.: 81 of 180

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STRUCTURAL ABBREVIATIONS

&	And
@	At
AASHTO	American Association of State Highway & Transportation Officials
AB	Anchor Bolt
Abut	Abutment
AC	Asphalt Concrete
ACI	American Concrete Institute
ACU	Air Conditioning Unit
Aggr	Aggregate
AHU	Air Handling Unit
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
Anch	Anchor
ANSI	American National Standards Institute
Approx	Approximate
Arch.	Architect, Architectural
AREMA	American Railway Engineering & Maintenance–of–Way Association
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing & Materials
AWS	American Welding Society
℄	Baseline
Bal	Balance
BF	Both Faces
Bldg	Building
Blkg	Blocking
Bm	Beam
Bot	Bottom
℄	Centerline
c	Camber
C–C	Center to Center
CCH	City and County of Honolulu
CFS	Cold–Formed Steel
CIP	Cast–in–Place
CJ	Construction Joint, Control Joint
Clr	Clear, Clearance
CMU	Concrete Masonry Unit
Col	Column
Conc	Concrete
Conn	Connect, Connection, Connector
Cont	Continuous, Continue
Cu	Cubic
CY	Cubic Yard
D	Depth
Dbl	Double
Dept	Department
Det	Detail
Dia	Diameter
Diag	Diagonal, Diagram
Diaph	Diaphragm
Dim	Dimension
Dir	Direction
Dist	Distance
DL	Dead Load
Dn	Down
DOT	Department of Transportation
DS	Downspout
Dwg	Drawing
Dwl	Dowel
E	East
ea	Each
EB	Eastbound
EE	Each End
EF	Each Face, Exhaust Fan
EJ	Expansion Joint
El, Elev	Elevation
Elec	Electric, Electrical
Elev	Elevator
Engr	Engineer, Engineering
EQ	Earthquake
Eq	Equal
Eqn	Equation
Est	Estimate
EW	Each Way
Exc	Excavation
Exist	Existing
Exp	Expansion
Ext	Exterior, External
Extn	Extension

FD	Floor Drain
Fdn	Foundation
FF	Finish Floor
FFE	Finish Floor Elevation
FHWA	Federal Highway Administration
Fig.	Figure
Fin	Finish
Fl	Floor
Fr	Frame
ft	Foot, Feet
Ftg	Footing
Fu	Ultimate Stress
Fy	Yield Stress
Ga	Gauge
Galv	Galvanized
GB	Grade Beam
Gen	General
Gnd	Ground
Govt	Government
Grd	Grade
H	High, Height, Horizontal
HDOT	Hawaii Department of Transportation
HHCTCP	Honolulu High–Capacity Transit Coridor Project
Horiz	Horizontal
Hr	Hour
HS	High Strength
HSS	Hawaii Standard Specifications for Road and Bridge Construction (Issued 2005)
HSS	Hollow Structural Shape
Ht	Height
Hwy	Highway
IBC	International Building Code
ICC–ES	International Code Council–Evaluation Service
ID	Inside Diameter
IF	Inside Face
in.	Inch
Incl	Included, Including, Inclusive
Int	Interior
Inv	Invert
JG	Joint Girders
Jt	Joint
Jt(s)	Joints
K	Kip(s)
KF	Kip Foot
KLF	Kips Per Linear Foot
KSF	Kips Per Square Foot
KSI	Kips Per Square Inch
L	Left, Length, Angle (Steel Shape)
LB	Pound (unit of measure)
LF	Linear Foot
Lin	LinearLinear
LL	Live Load
LLH	Long Leg Horizontal
LLV	Long Leg Vertical
Long.	Longitudinal
Max	Maximum
Mech	Mechanical
Met	Metal
Mezz	Mezzanine
Mfr	Manufacturer
MH	Manhole
Mil	One Thousandth of an inch
Min	Minimum
Misc	Miscellaneous
mm	Millimeter
Mom	Moment
MOW	Maintenance–of–Way
Mtg	Meeting
Mtl	Material

N	North
N/A	Not Applicable
NAS	North American Specification
NB	Northbound
NE	Northeast
Neg	Negative
NF	Near Face
NIC	Not in Contract
No.(Nos.)	Number (Numbers)
Nom	Nominal
NTS	Not to Scale
NW	Northwest
OC	On Center
OD	Outside Diameter
OF	Outside Face
Opng	Opening
Opp	Opposite
Opp Hd	Opposite Hand
oz	Ounce
PAMFP	Power Actuated Mechanical Fasteners
PC	Precast Concrete
PCF	Pounds Per Cubic Feet
P/T	Post Tensioned
P.E.	Professional Engineer
Perp	Perpendicular
Ph	Phase
Plywd	Plywood
Pos	Positive
Proj	Project
Prop	Property
PSF	Pounds Per Square Feet
PSI	Pounds Per Square Inch
PVC	Polyvinyl Chloride
Pvmt	Pavement
QA/QC	Quality Assurance/Quality Control
Qty	Quantity
R	Radius
RC	Reinforced Concrete
RD	Roof Drain
Rdwy	Roadway
Rect	Rectangle
Ref	Reference
Reinf	Reinforce, Reinforcing
Repl	Replace, Replaced
Reqd	Required
Ret	Return, Retain, Retaining
Rev	Revision, Revised
RFP	Request for Proposal
Rm	Room
RO	Rough Opening
ROW	Rlgh–of–Way
Rt	Right
RTD	Rapid Transit Division
RW	Retaining Wall

S	South
S1	Mapped MCE Spectral Response Acceleration at a Period of 1–sec.
Sch	Schedule
SDS	Design Spectral Response Acceleration at Short Periods
SD1	Design Spectral Response Acceleration at a Period of 1–sec.
SE	Southeast
Sect	Section
SF	Square Foot, Square Feet
Sgl	Single
Sht	Sheet
Sim	Similar
SJI	Steel Joist Institute
SMS	Sheet Metal Screw
Spec	Specification
Sq	Square
SRP	Skylight Roof Post
SS	Stainless Steel
Sta	Station, Stationing
Std	Standard
Stiff	Stiffener
Stl	Steel
Struct	Structure
SW	Southwest
Sym	Symmetrical
T	Top
T&B	Top and Bottom
T&G	Tongue and Groove
Temp	Temporary, Temperature
Thk	Thick, Thickness
Thru	Through
TOC	Top of Concrete
Topo	Topography
TOR	Top of Rail
TOS	Top of Slab
TO Stl	Top of Steel
Tot.	Total
TOW	Top of Wall
Typ	Typical
UNO	Unless Noted Otherwise
V	Vertical
Var	Variable, Varies
Veh	Vehicle
Vert	Vertical
Vol	Volume
W	Wide Flange, Width
w/	With
w/o	Without
WB	Westbound
WF	Wall Footing
WL	Wind Load
WP	Work Point
WSD	Wall Stud Design
Wt	Weight
WWF	Welded Wire Fabric

SPECIAL TERMS

Makai	Ocean
Mauka	Mountain

Rev	By	Date	Description

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Drawn: J Tamanaha
Checked: K Hayashida
Approved: E Sugiyama
Date: 09–11–09

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PEARL HIGHLANDS STATION

STRUCTURAL ABBREVIATIONS

Contract No.: SV–245
CADD File: SC4–G01–SG005
Drawing No: SG005 Rev.
Scale: N/A
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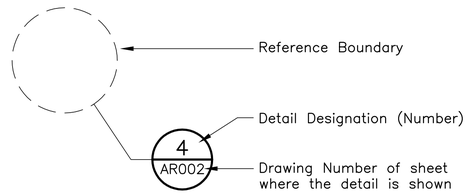
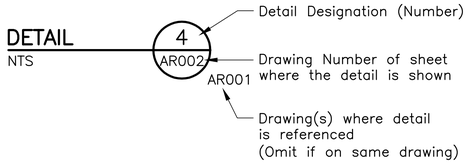
STRUCTURAL SYMBOLS

DETAILS





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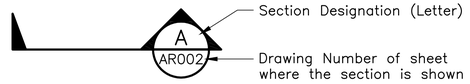
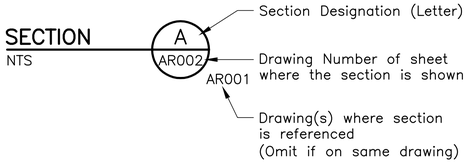
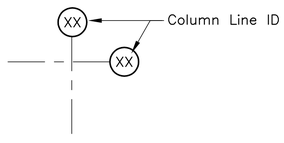




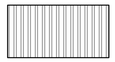
COLUMN LINE GRID INDICATOR



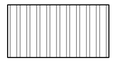
GENERAL SYMBOLS

&	And
@	At
#	Number
ø	Diameter
%	Percent
=	Equal to
>	Greater Than
<	Less Than
≥	Greater Than or Equal To
≤	Less Than or Equal To
±	Plus or Minus

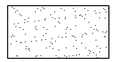
HATCH



Metal Deck w/Conc Topping (Plan View)



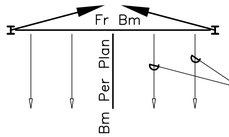
Metal Deck w/No Topping (Plan View)



Slab on Grade (Plan View)

LEGEND

Struct. Steel "X" Braced Frame (Above)



Struct. Steel Braced Frame (Above)

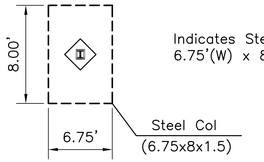
Non–Struct. Partition (See Arch. Drawings)

Non–Struct. Shaft Wall

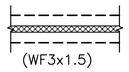
Tilt–Up Wall

CMU Wall

Wall Below

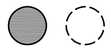


Indicates Steel Moment Frame Column & 6.75'(W) x 8.00'(L) x 1.5' Thk Footing



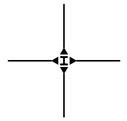
Indicates Continuous Footing 3'(W) x 1.5'(T)

Indicates Mark Number of Equipment to be Furnished and Installed. Refer to Industrial Drawing Sheet QG101 for Description

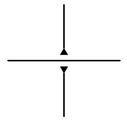


Proposed Drilled Shaft

Existing Pier (by others)



Indicates Beam–to–Column Moment Connection



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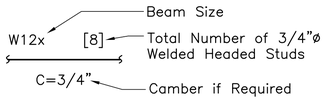

Indicates Direction of Precast Concrete Plank Span

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PEARL HIGHLANDS STATION

STRUCTURAL SYMBOLS

Contract No.: SV–245
CADD File: SC4–G01–SG006
Drawing No: SG006
Rev.
Scale: N/A
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Note:
See Civil Grading Plan for retaining wall stationing start and end.

RETAINING WALL PLAN

WALL DETAIL
NTS

40' 0 40'

Rev	By	Date	Description
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PEARL HIGHLANDS STATION & PARKING STRUCTURE

ROADWAY ENTRY RETAINING WALL PLAN AND DETAIL

Contract No.: SV-245
CADD File: SC4-G10-WP001
Drawing No: WP001
Rev.:
Scale: 1"=40'
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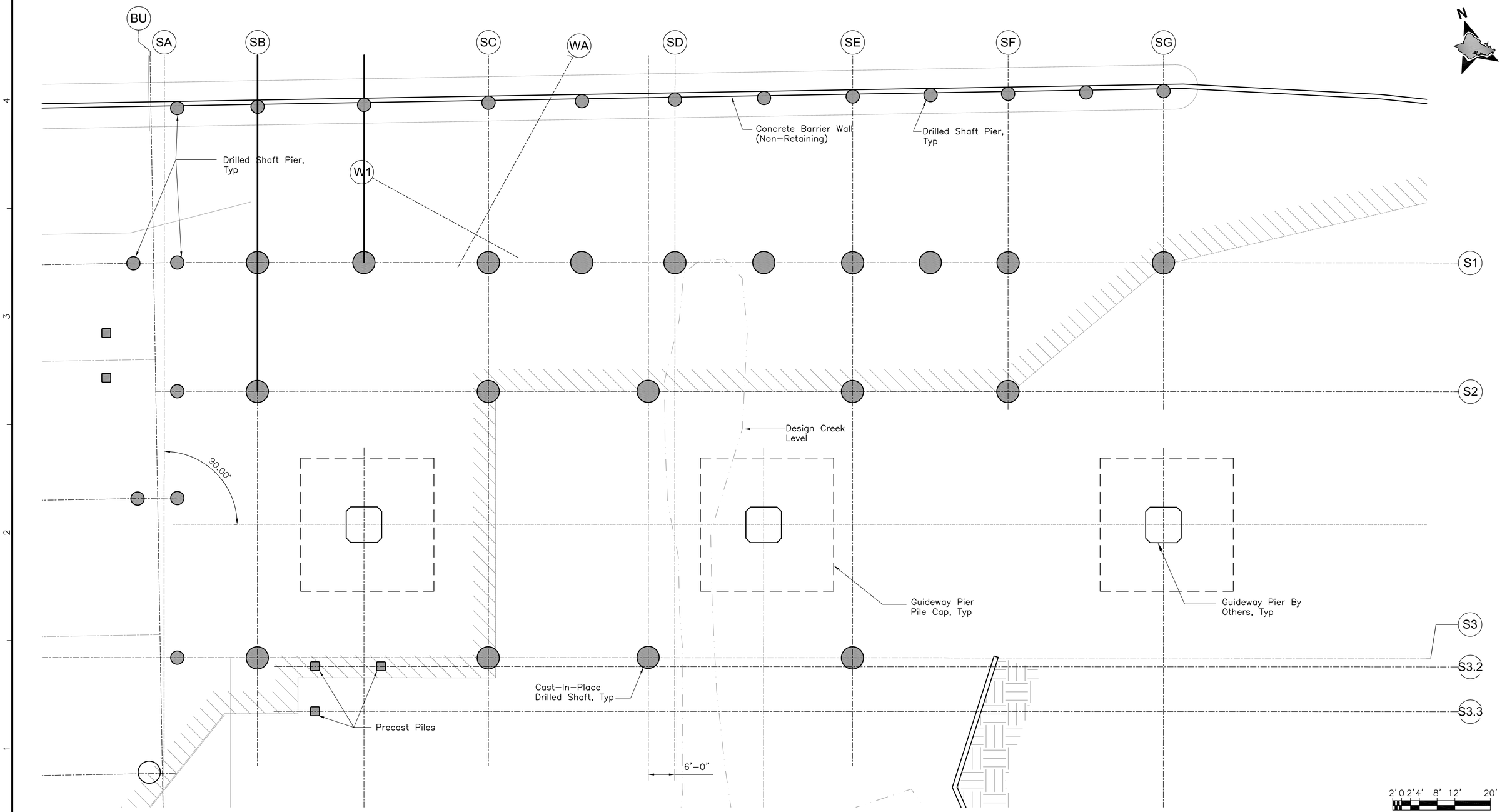

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PEARL HIGHLANDS STATION

STATION FOUNDATION PLAN

Contract No.: SV-245
CADD File: SC4A-G13-ST101
Drawing No: ST101
Rev.
Scale: 3/32"=1'-0"
Page No. 85 of 180

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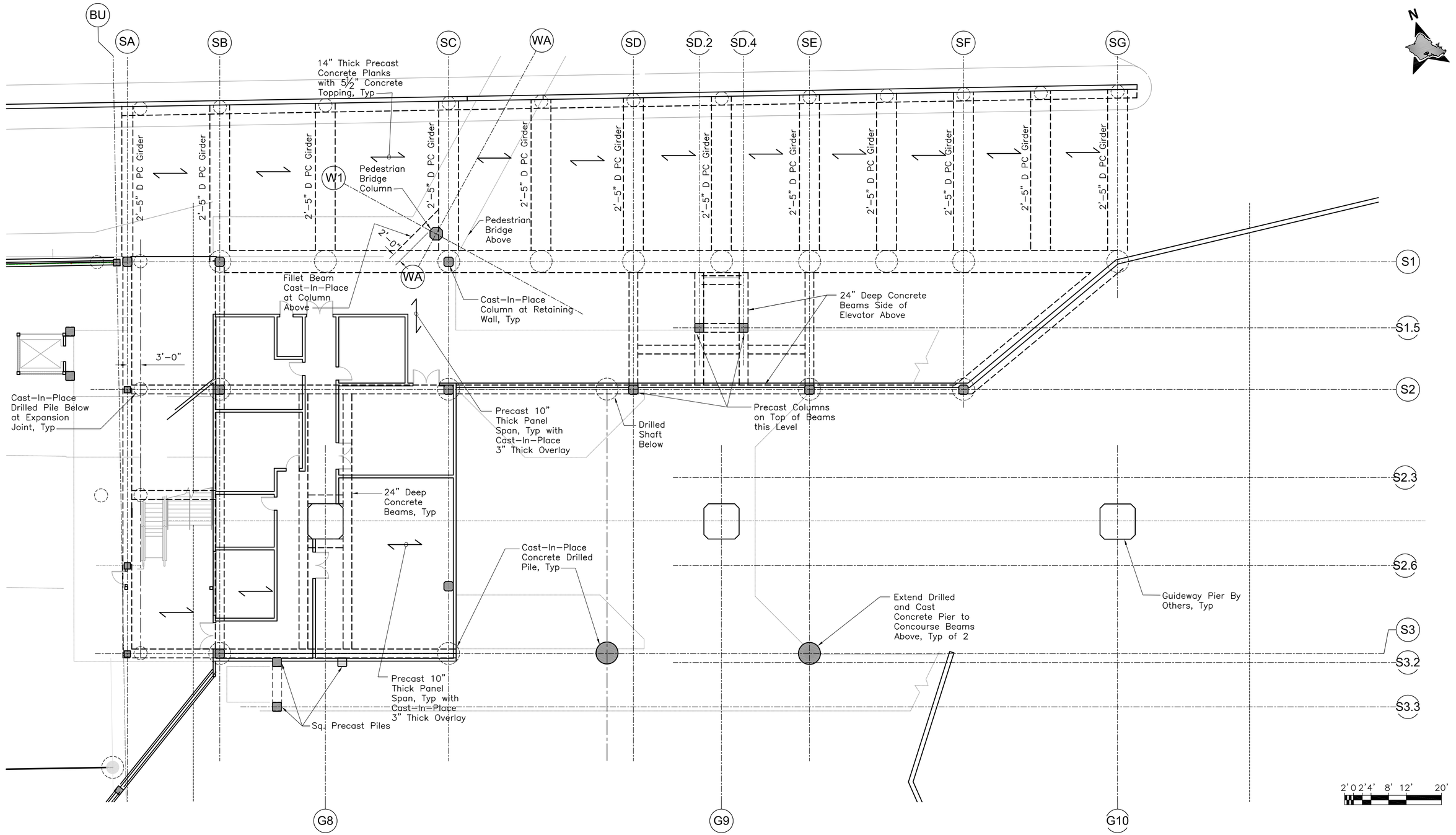

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: J Fujita
Drawn: J Tamanaha
Checked: K Hayashida
Approved: E Sugiyama
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

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PEARL HIGHLANDS STATION

STATION PLAZA LEVEL FRAMING PLAN

Contract No.: SV-245
CADD File: SC4A-G14-ST102
Drawing No: ST102 Rev.
Scale: 3/32"=1'-0"
Page No. 86 of 180

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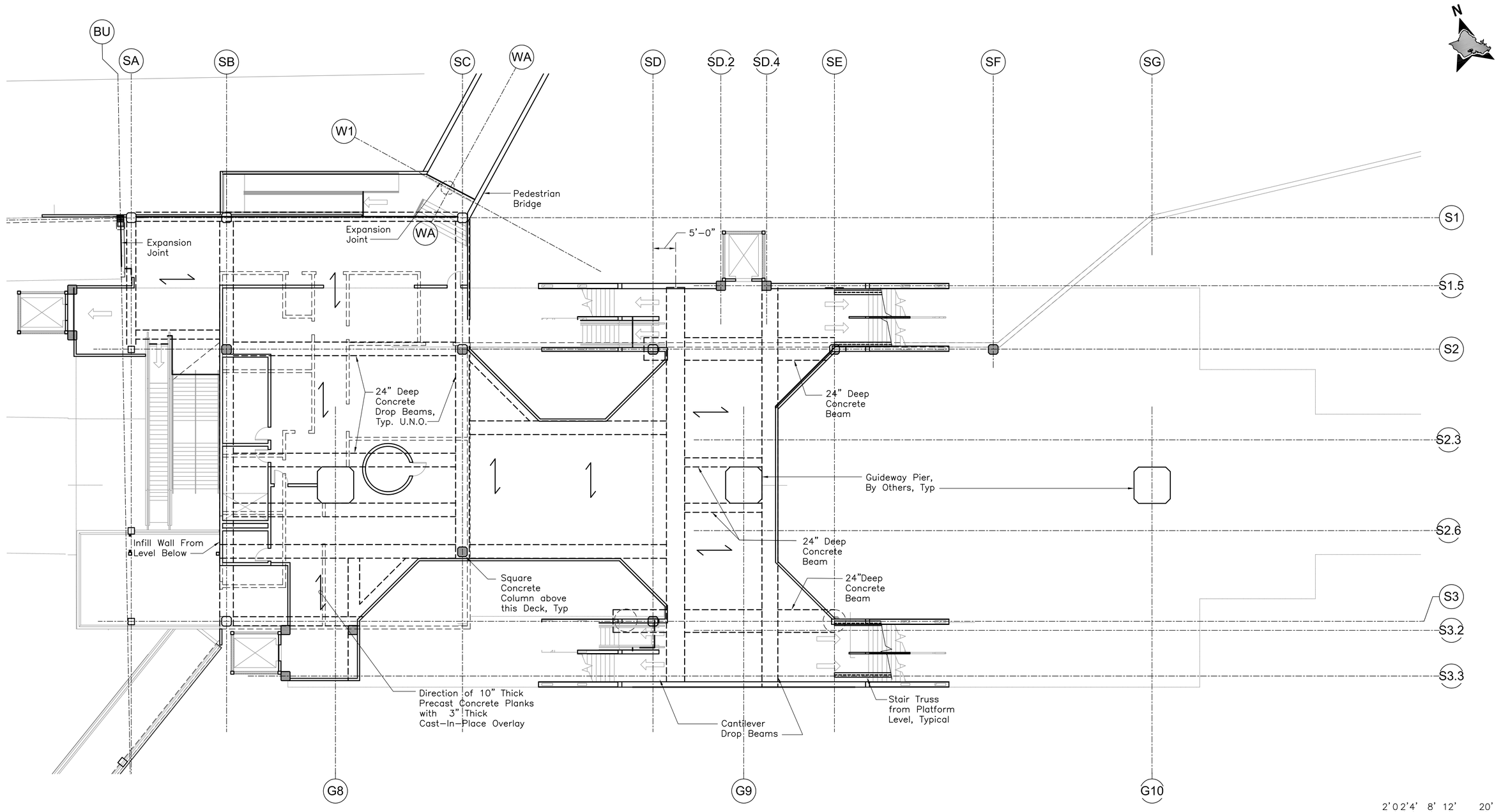

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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

STATION CONCOURSE LEVEL FRAMING PLAN

Contract No.: SV–245
CADD File: SC4A–G14–ST103
Drawing No: ST103 Rev.
Scale: 3/32"=1'–0"
Page No. 87 of 180

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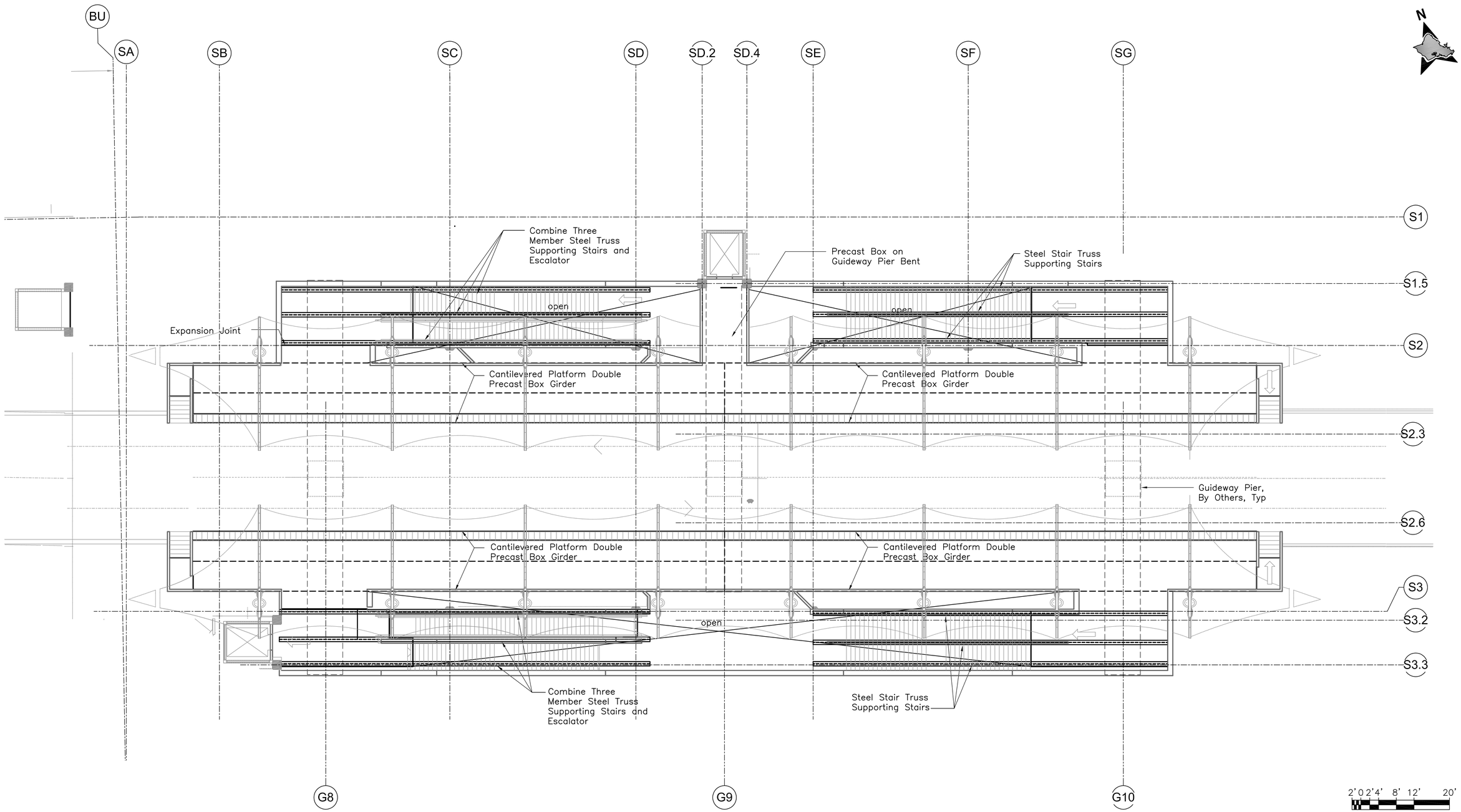

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PEARL HIGHLANDS STATION

STATION PLATFORM FRAMING PLAN

Contract No.: SV–245
CADD File: SC4A–G14–ST104
Drawing No.: ST104 Rev.
Scale: 3/32"=1'–0"
Page No. 88 of 180

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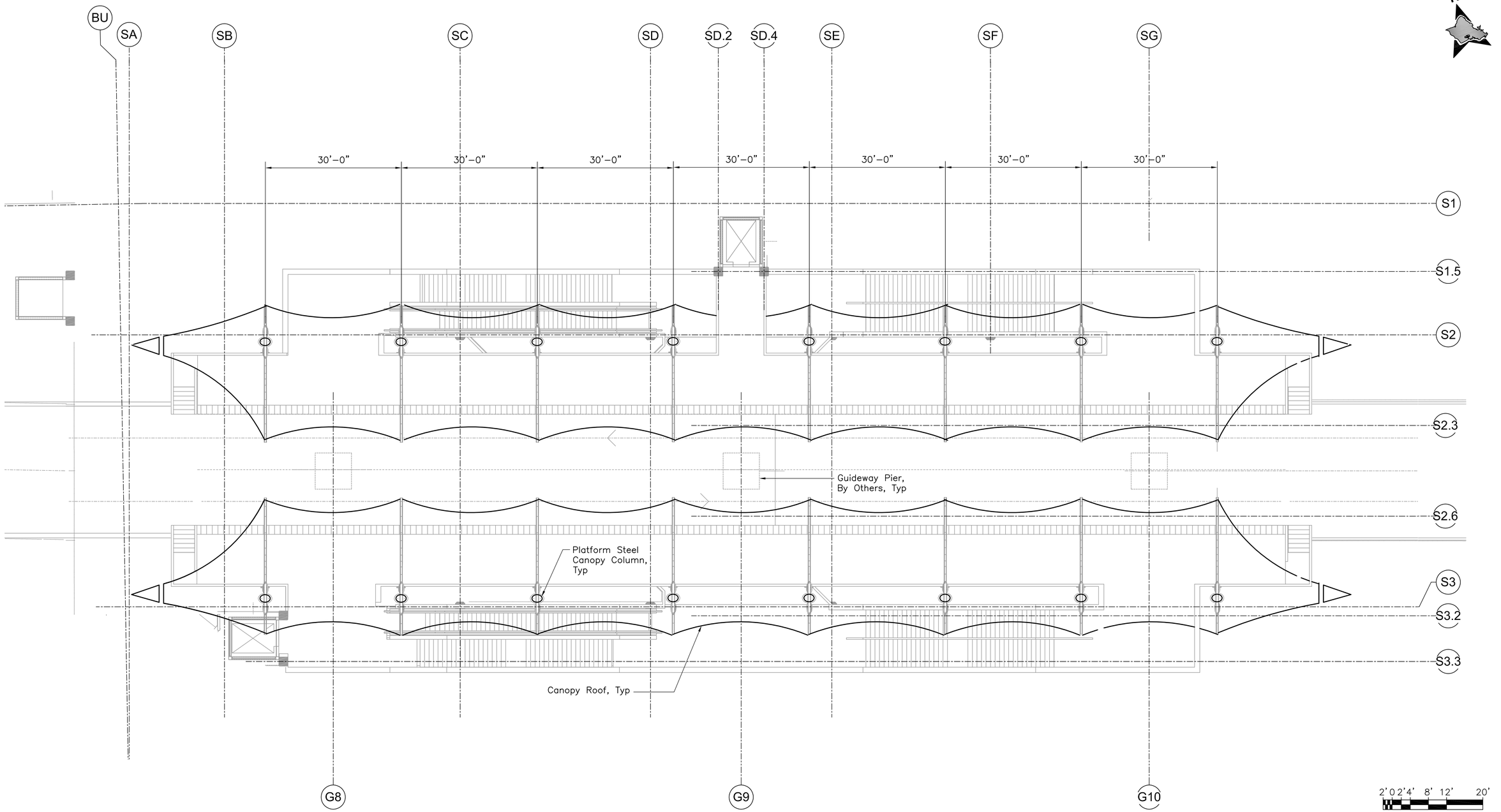

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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

STATION ROOF FRAMING PLAN

Contract No.: SV–245
CADD File: SC4A–G14–ST105
Drawing No.: ST105 Rev.
Scale: 3/32"=1'–0"
Page No. 89 of 180

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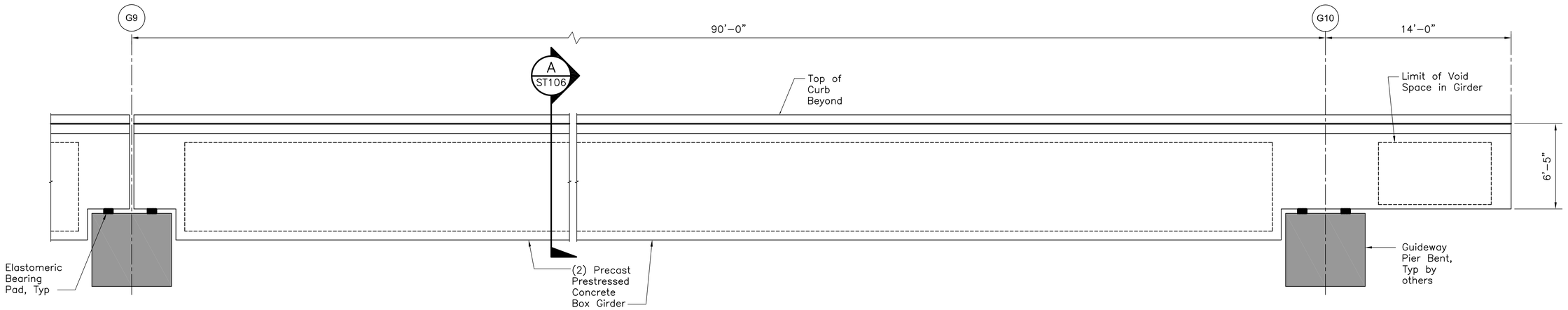
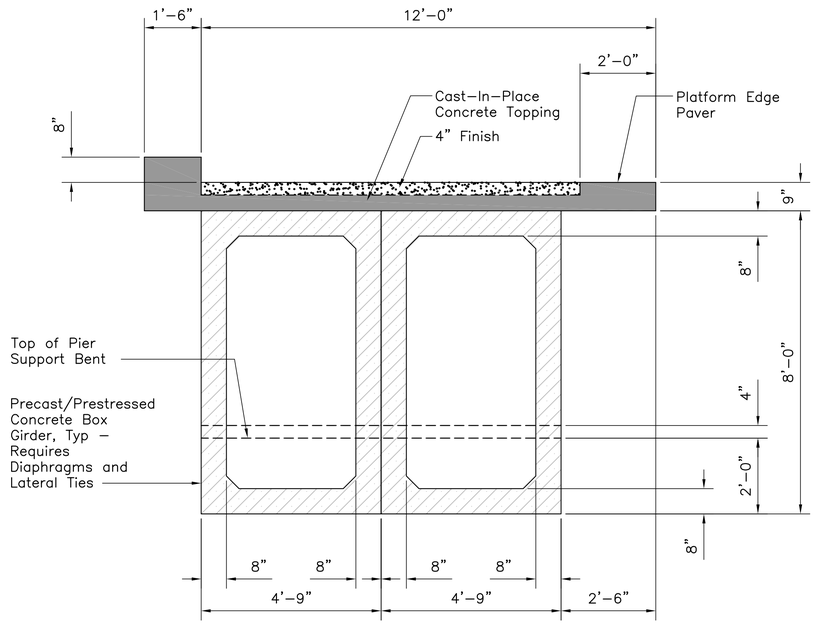


PLATFORM GIRDER ELEVATION

1/4" = 1'–0"

1 ST106



PRECAST DOUBLE–BOX GIRDER

1/2" = 1'–0"

A ST106

1' 0 2' 4'

1' 0 2' 4' 8'

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PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

PLATFORM PRECAST GIRDER

ELEVATION AND SECTION

Contract No.: SV–245
CADD File: SC4A–G15–ST106
Drawing No.: ST106 Rev.
Scale: As Noted
Page No. 90 of 180

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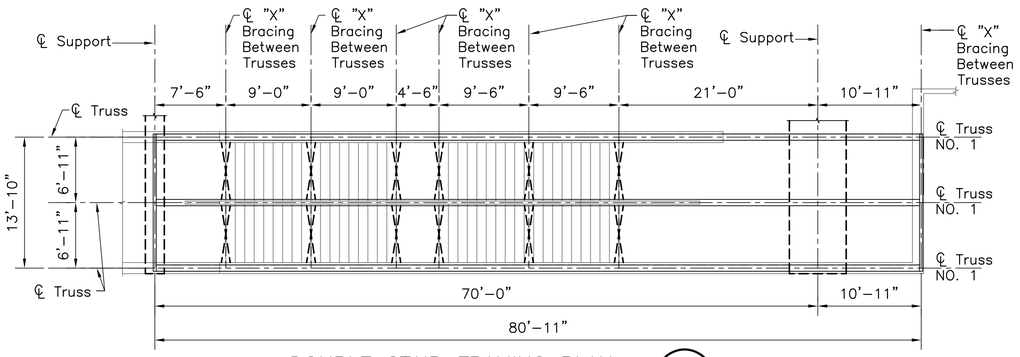
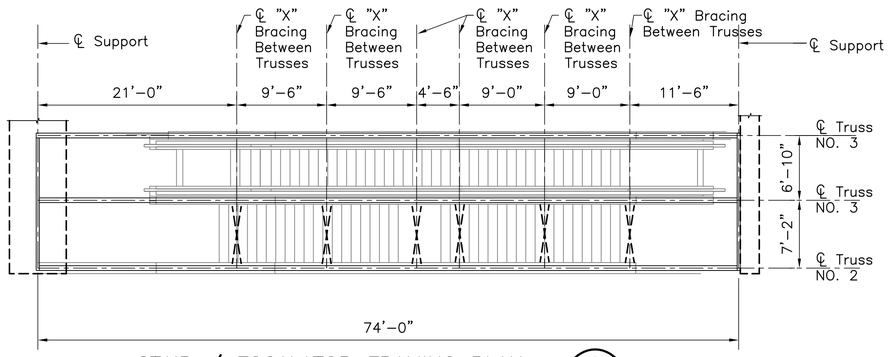


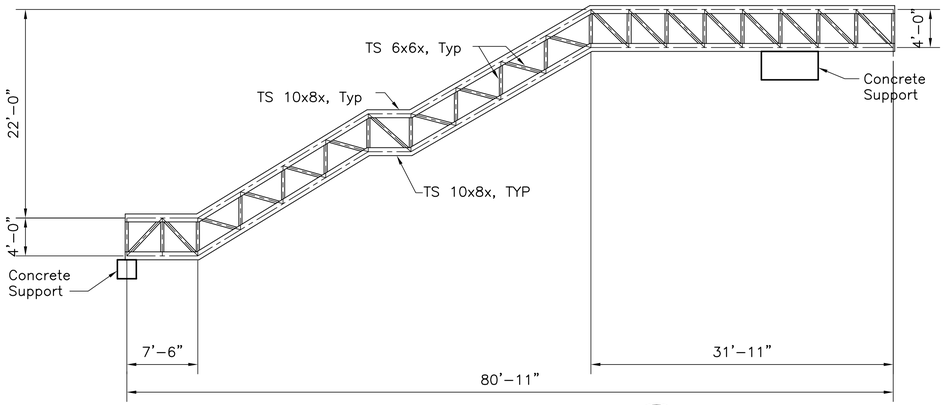
DOUBLE STAIR FRAMING PLAN (1 / ST107)

SCALE: 1/8" = 1'–0"



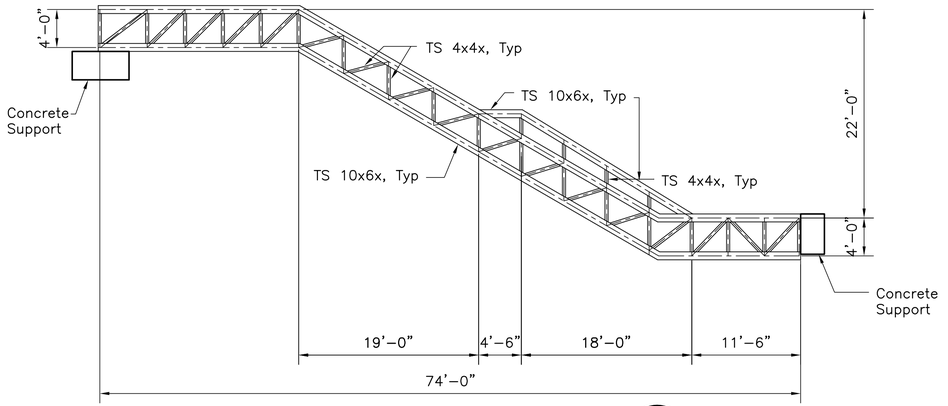
STAIR / ESCALATOR FRAMING PLAN (2 / ST107)

SCALE: 1/8" = 1'–0"



TRUSS NO.1 ELEVATION (3 / ST107)

SCALE: 1/8" = 1'–0"



TRUSS NO. 2 ELEVATION (4 / ST107)

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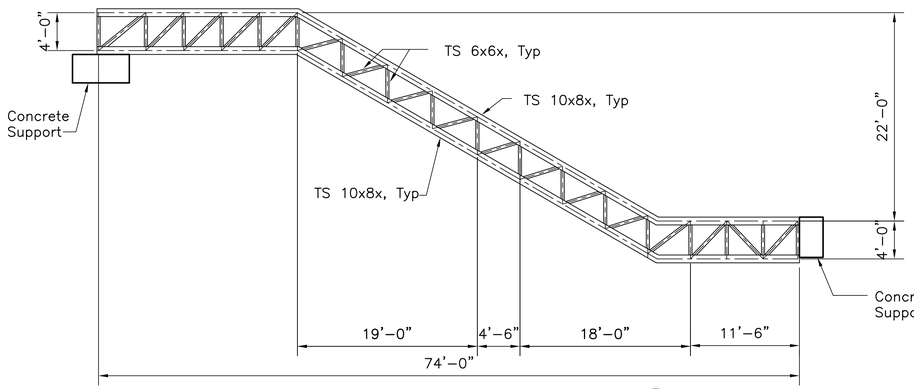

TRUSS NO. 3 ELEVATION (5 / ST107)

SCALE: 1/8" = 1'–0"

* Confirm dimension with Escalator Manufacturer

1' 0 2' 4' 8'

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PRELIMINARY ENGINEERING SUBJECT TO REVISION

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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

STATION STAIR TRUSSES AND ESCALATOR

ELEVATIONS AND PLANS

Contract No.: SV–245
CADD File: SC4A–G15–ST107
Drawing No.: ST107 Rev.:
Scale: As Noted
Page No. 91 of 180

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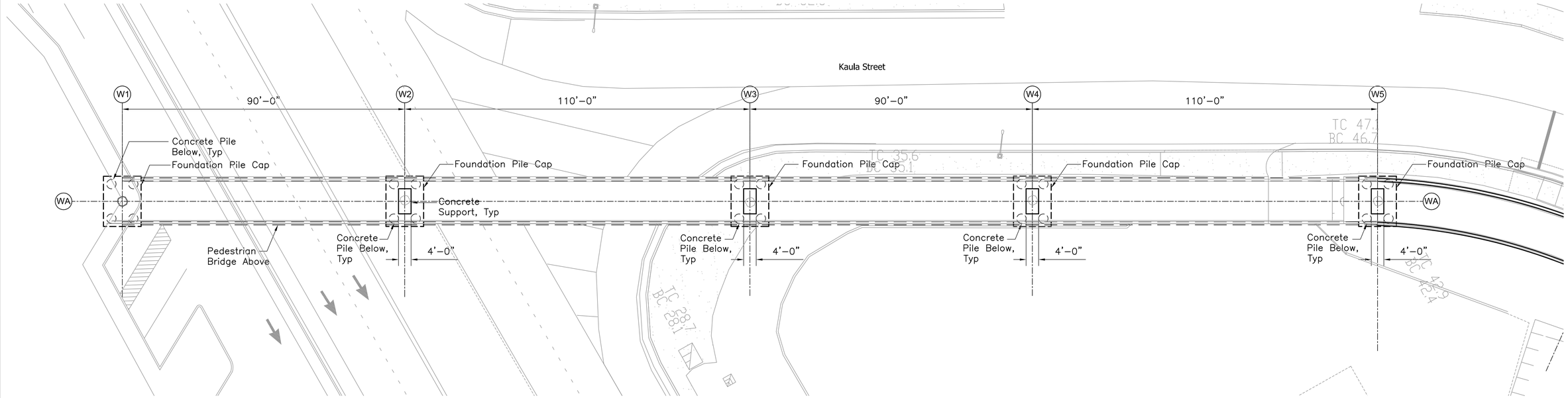

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

STRUCTURAL PEDESTRIAN BRIDGE OVER KAMEHAMEHA HWY

FOUNDATION PLAN

Contract No.: SV–245
CADD File: SC4B–G13–ST201
Drawing No.: ST201 Rev.
Scale: 1/16"=1'–0"
Page No. 92 of 180

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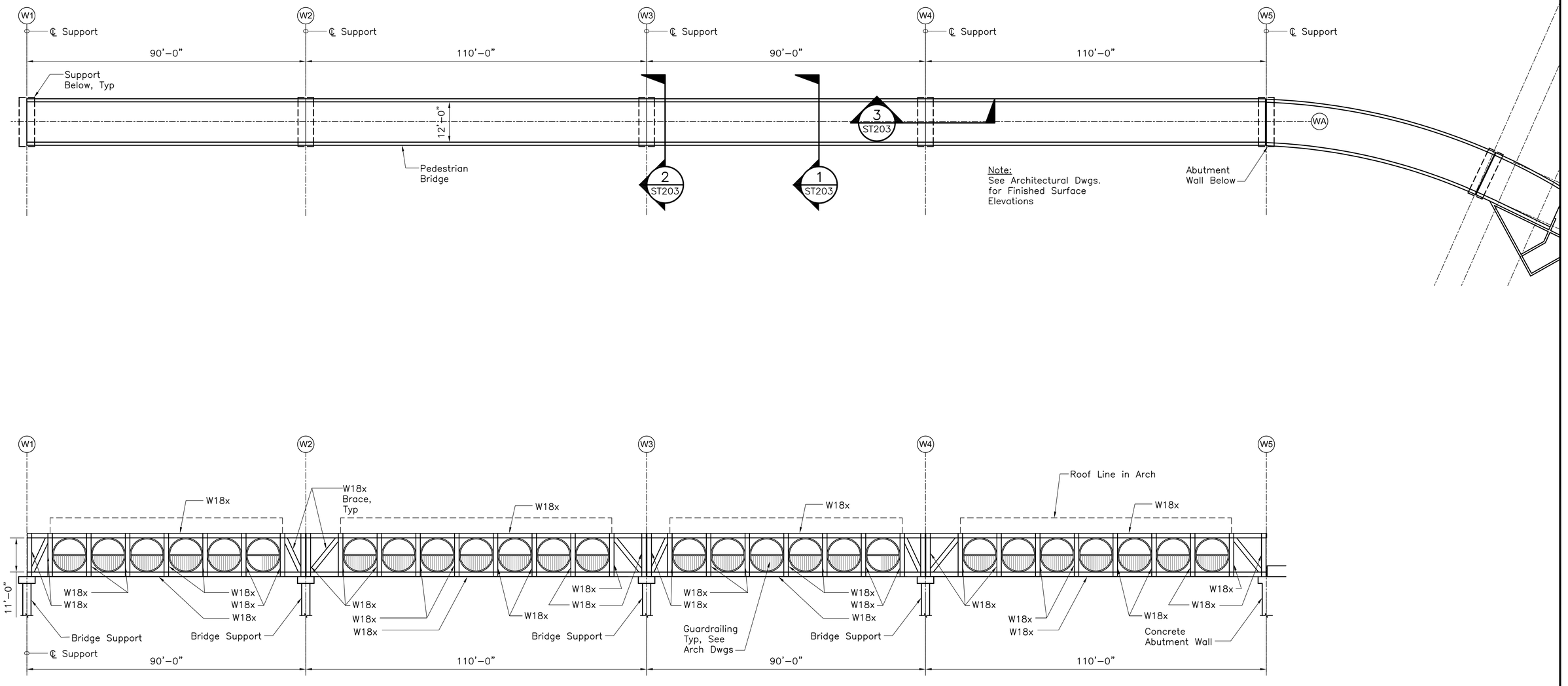

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Checked: K Hayashida
Approved: E Sugiyama
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

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PEARL HIGHLANDS STATION

STRUCTURAL PEDESTRIAN BRIDGE OVER KAMEHAMEHA HWY

DECK FRAMING PLAN & ELEVATION

Contract No.: SV–245
CADD File: SC4B–G15–ST202
Drawing No: ST202 Rev.
Scale: 1/16"=1'–0"
Page No. 93 of 180

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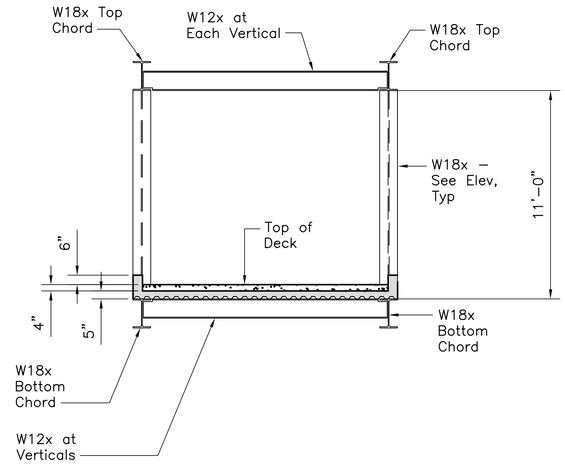
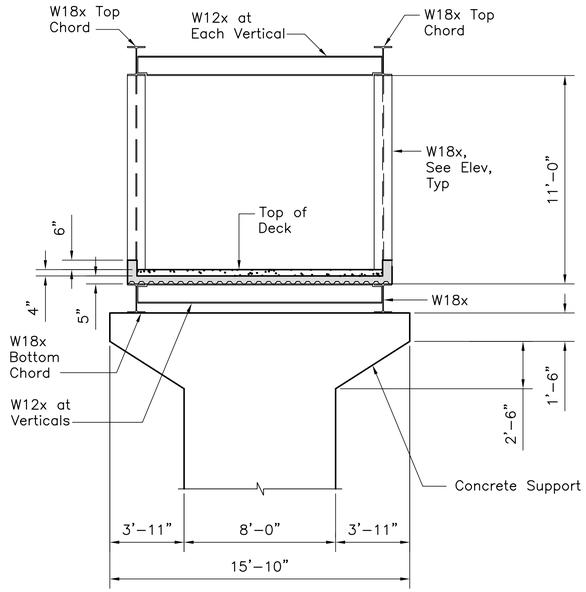
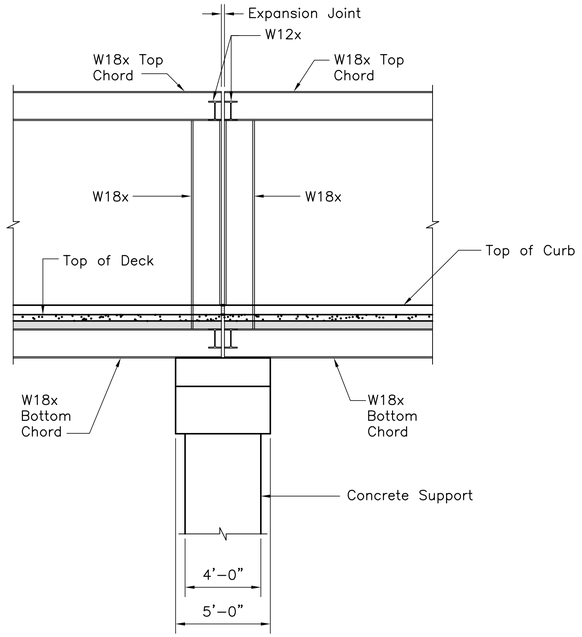


BRIDGE SECTION
1/4" = 1'–0"
1 ST203 ST202



BRIDGE SECTION AT SUPPORT
1/4" = 1'–0"
2 ST203 ST202



BRIDGE SUPPORT SECTION
1/4" = 1'–0"
3 ST203 ST202

1' 0 2' 4' 8'

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Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

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PEARL HIGHLANDS STATION

STRUCTURAL PEDESTRIAN BRIDGE OVER KAMEHAMEHA HWY

ELEVATION AND SECTIONS

Contract No.: SV–245
CADD File: SC4B–G15–ST203
Drawing No: ST203 Rev.
Scale: As Noted
Page No. 94 of 180

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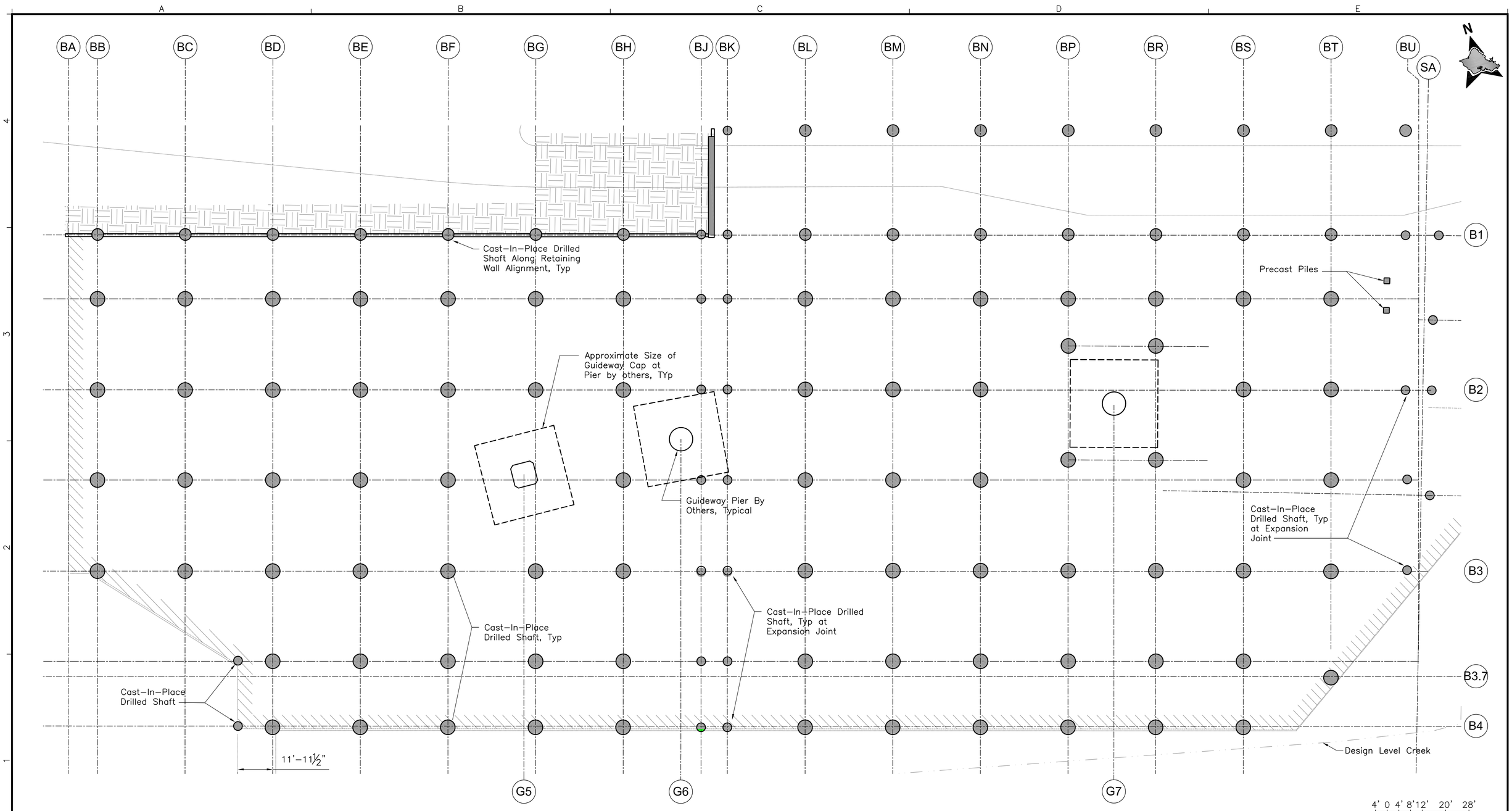

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CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

BUS TRANSIT CENTER FOUNDATION PLAN

Contract No.: SV–245
CADD File: SC4C–G13–ST301
Drawing No: ST301 Rev.
Scale: 1/16"=1'–0"
Page No. 95 of 180

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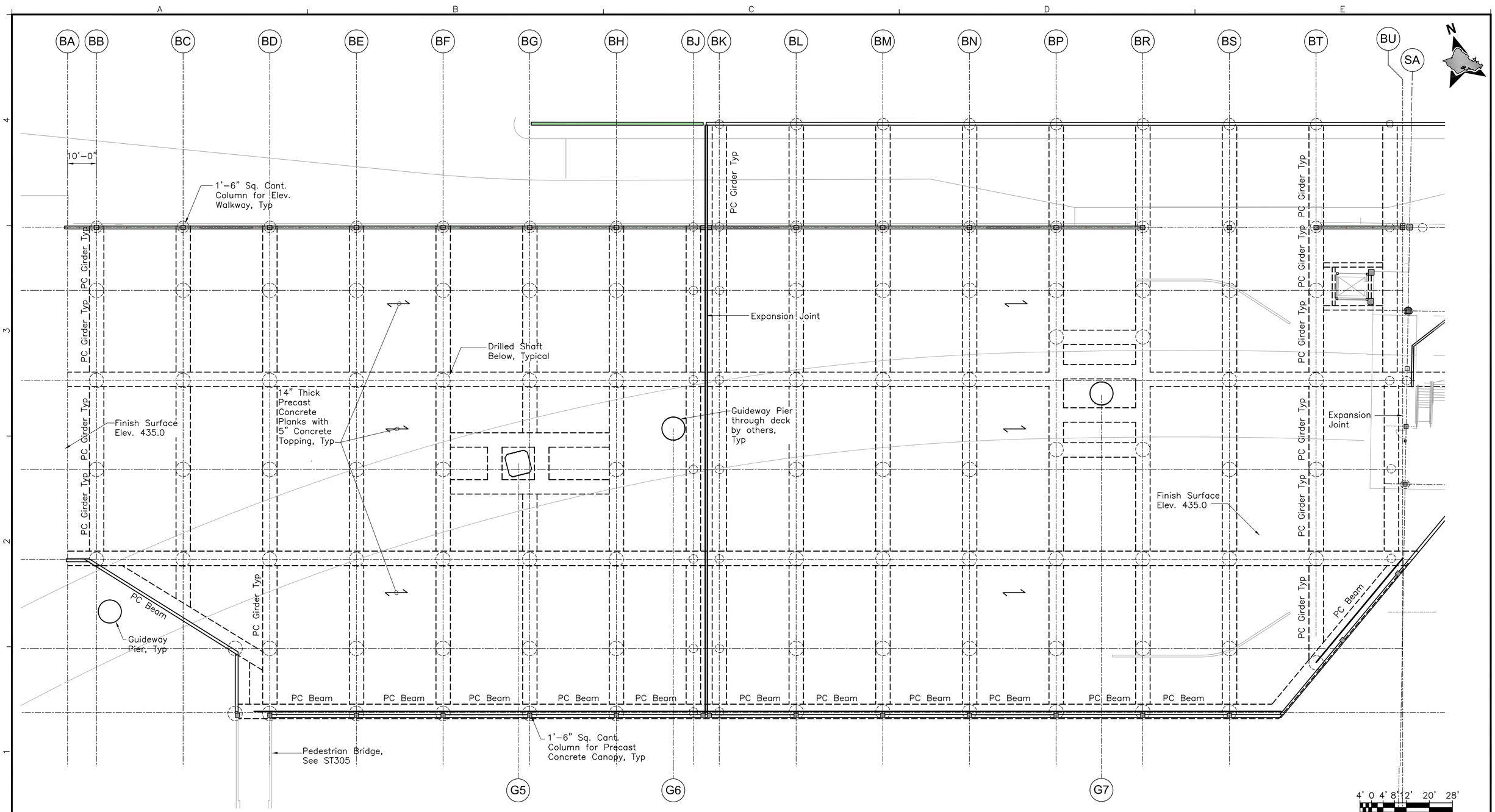

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CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

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PEARL HIGHLANDS STATION

BUS TRANSIT CENTER FRAMING PLAN

Contract No.: SV–245
CADD File: SC4C–G14–ST302
Drawing No: ST302 Rev.
Scale: 1/16"=1'–0"
Page No. 96 of 180

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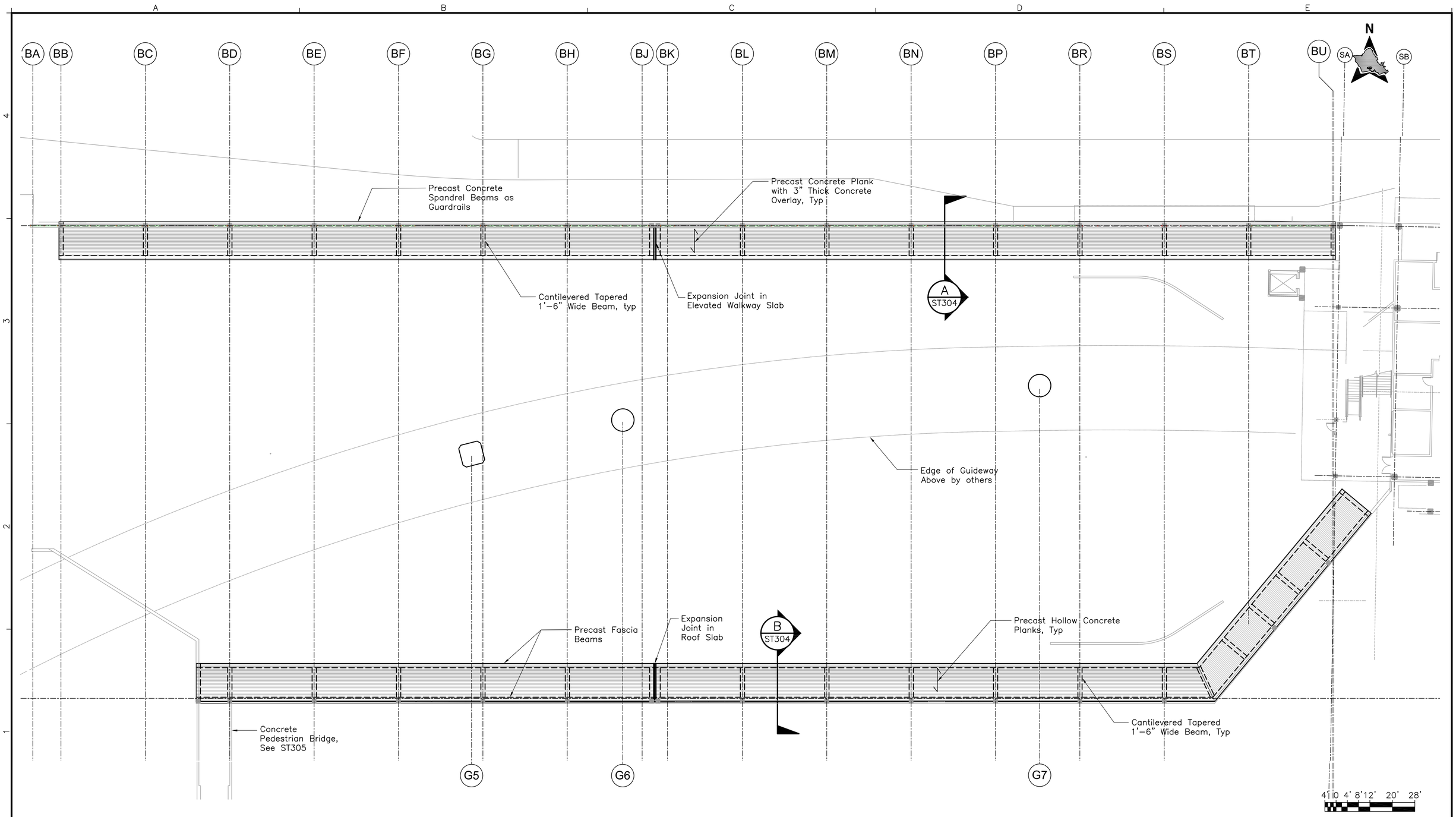

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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

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PEARL HIGHLANDS STATION

BUS TRANSIT CENTER ELEVATED WALKWAY AND CANOPY PLAN

Contract No.: SV–245
CADD File: SC4C–G14–ST303
Drawing No: ST303
Rev.:
Scale: 1/16"=1'–0"
Page No. 97 of 180

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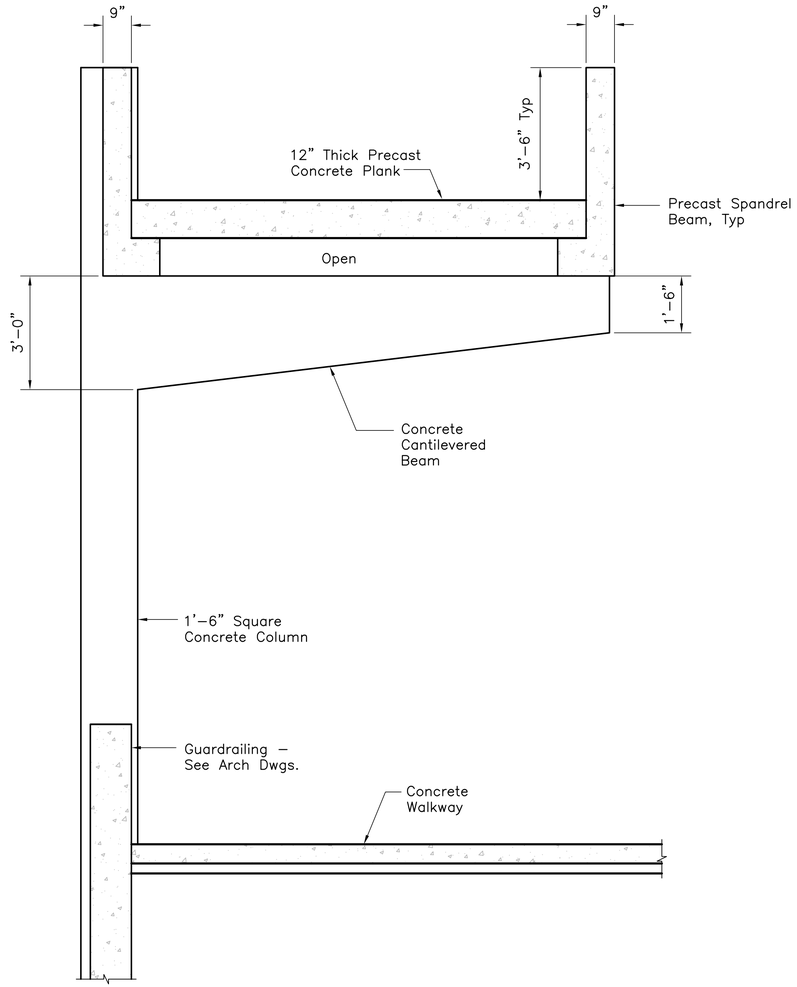
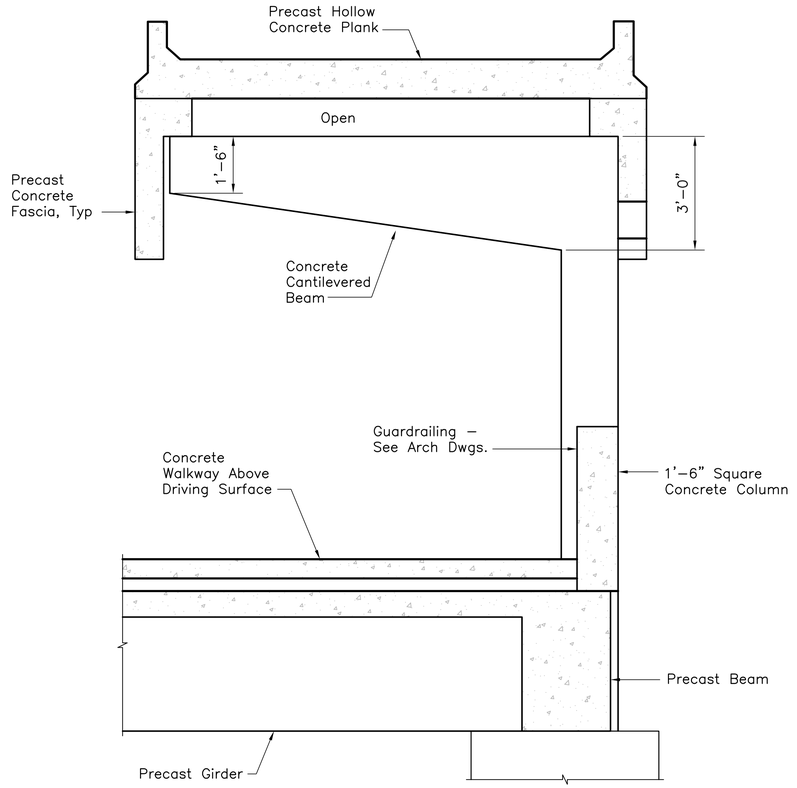


NORTH BUS WAITING AREA SECTION

SCALE: 1/2" = 1'–0"

A ST304 ST303



SOUTH BUS WAITING AREA SECTION

SCALE: 1/2" = 1'–0"

B ST304 ST303

1' 0 2' 4'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

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PEARL HIGHLANDS STATION

BUS TRANSIT CENTER ELEVATED WALKWAY SECTIONS

Contract No.: SV–245
CADD File: SC4C–G15–ST304
Drawing No: ST304 Rev.
Scale: As Noted
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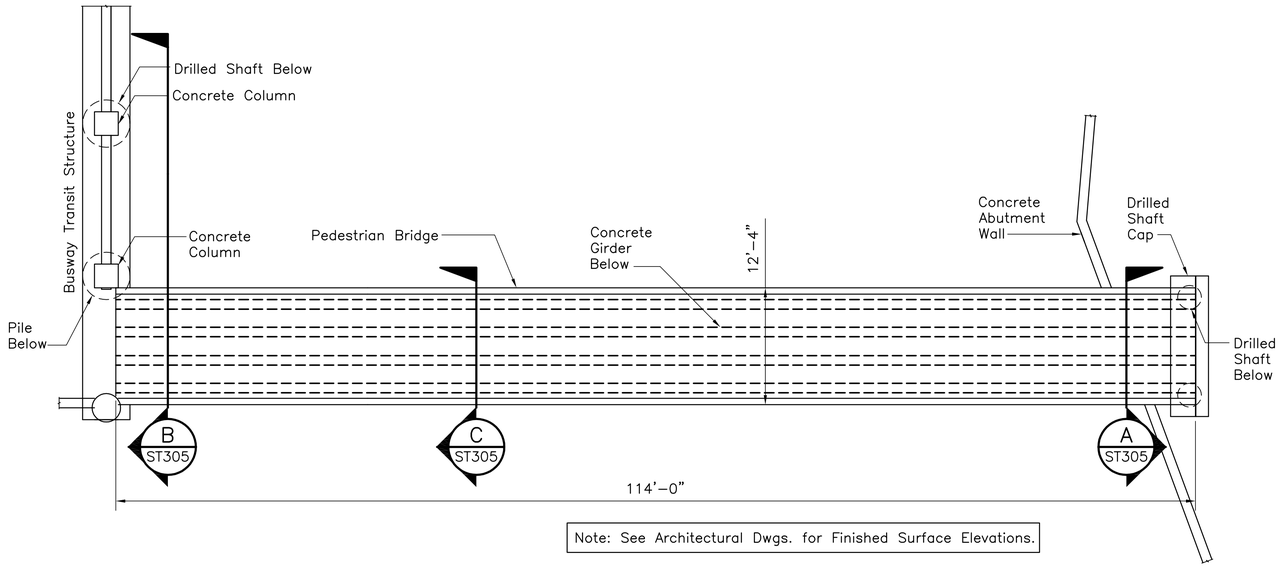
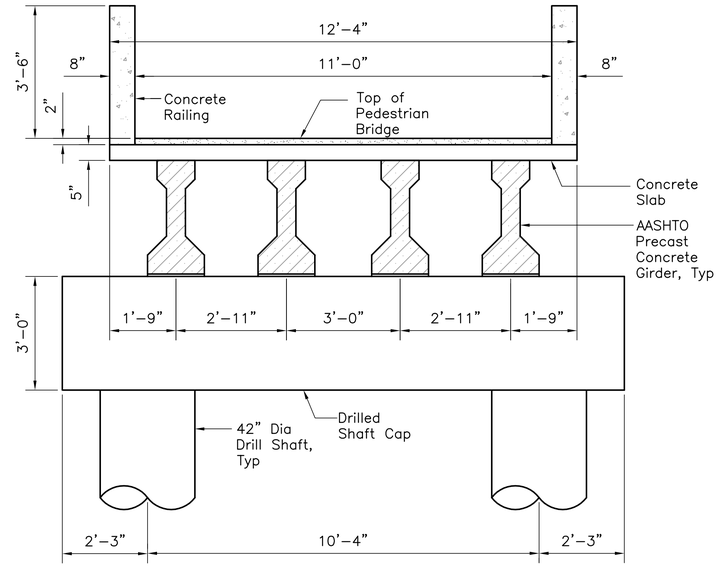


Note: See Architectural Dwgs. for Finished Surface Elevations.

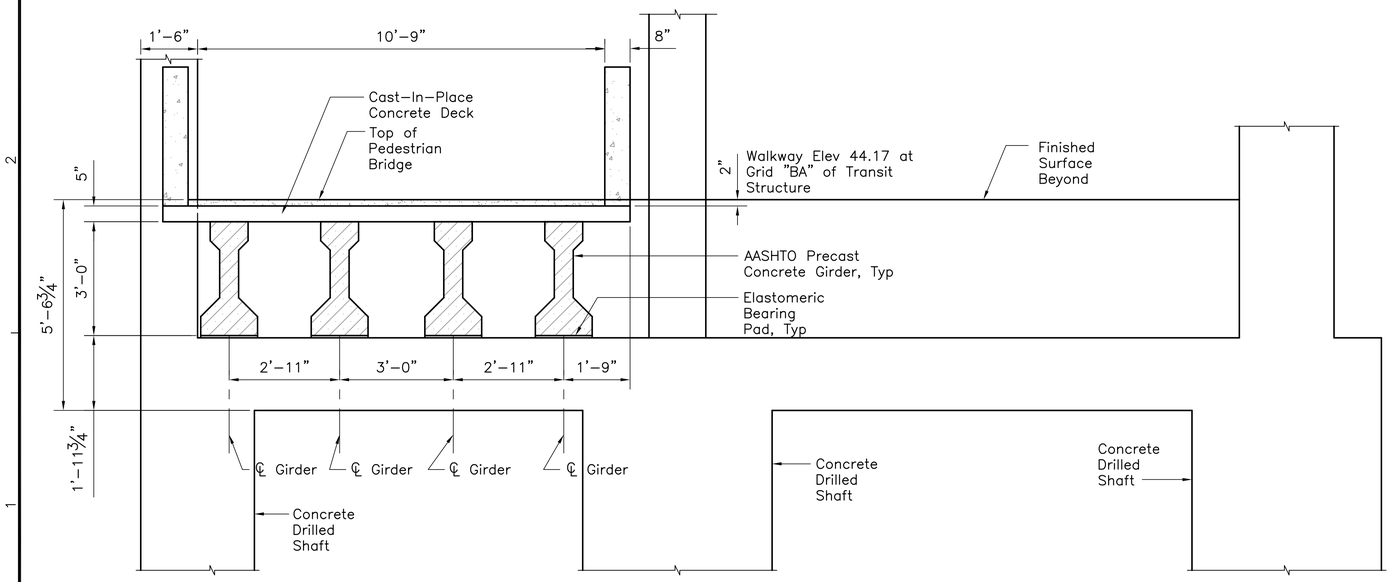
CONCRETE PEDESTRIAN BRIDGE PLAN (1 ST305)

SCALE: 1/8" = 1'-0"



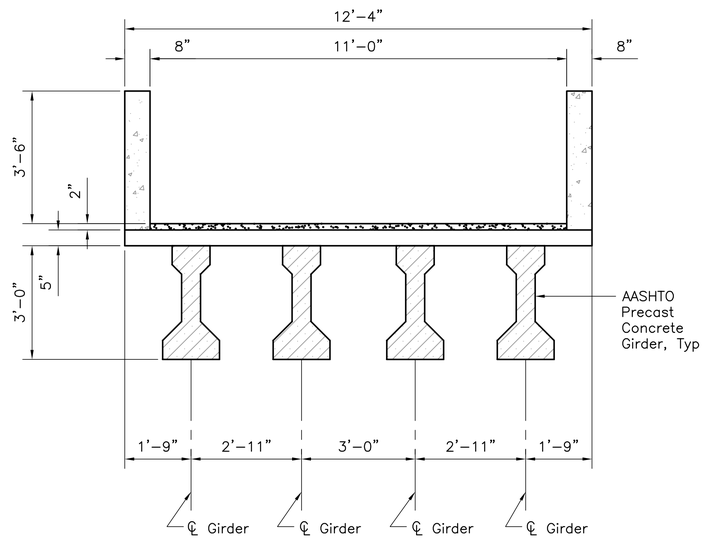
BRIDGE SUPPORT ELEVATION AT FARRINGTON HWY. (A ST305)

SCALE: 1/2" = 1'-0"



BRIDGE SUPPORT ELEVATION AT BUSWAY STRUCTURE (B ST305)

SCALE: 1/2" = 1'-0"



See Detail A on This Sheet For Additional Information

BRIDGE SECTION (C ST305)

SCALE: 1/2" = 1'-0"

2' 0 2' 4' 6' 10' 14'

1' 0 2' 4'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: J Fujita
Drawn: J Tamanaha
Checked: K Hayashida
Approved: E Sugiyama
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

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PEARL HIGHLANDS STATION

PEDESTRIAN BRIDGE TO FARRINGTON HWY

DECK FRAMING PLAN, ELEVATION & SECTION

Contract No.: SV-245
CADD File: SC4C-G15-ST305
Drawing No.: ST305 Rev.
Scale: As Noted
Page No. 99 of 180

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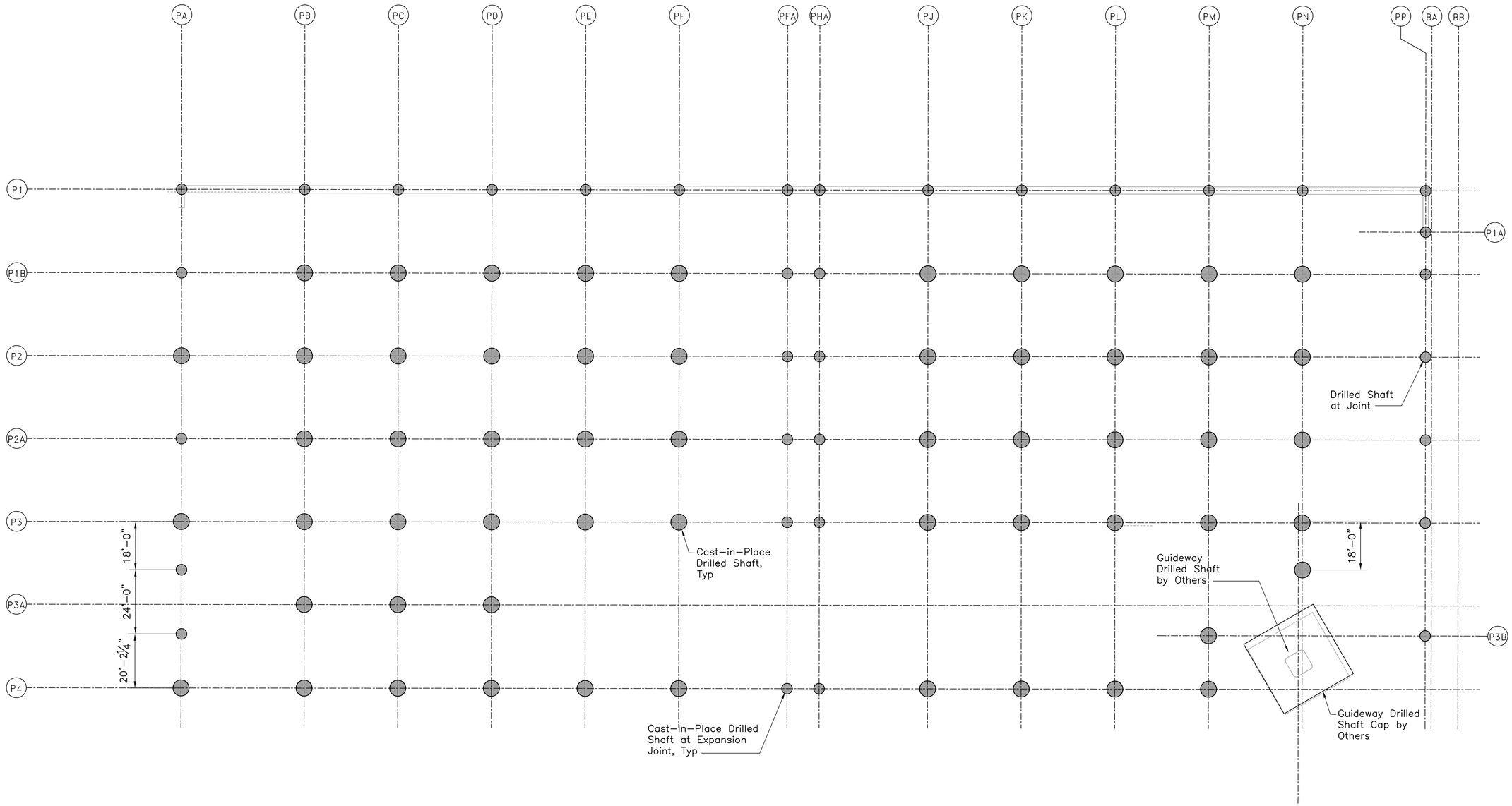

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: J Fujita
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Checked: K Hayashida
Approved: E Sugiyama
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

PARKING STRUCTURE AND BUILDING PLANS

FOUNDATION PLAN

Contract No.: SV-245
CADD File: SC4D-G13-ST401
Drawing No: ST401 Rev.
Scale: 1"=20'
Page No. 100 of 180

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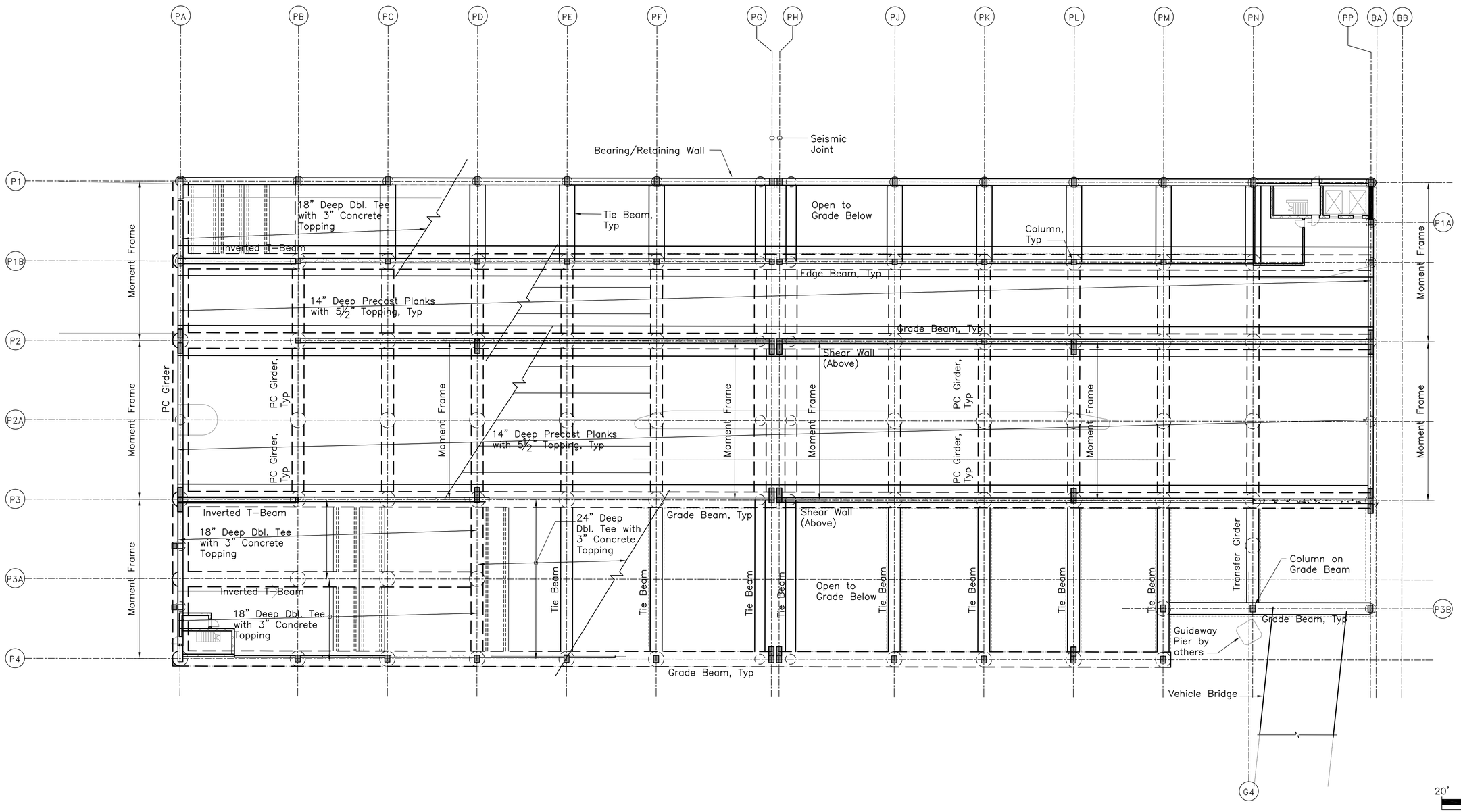

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Approved: E Sugiyama
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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

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PEARL HIGHLANDS STATION

PARKING STRUCTURE AND BUILDING PLANS

PARKING LEVEL - 1 FRAMING PLAN

Contract No.: SV-245
CADD File: SC4D-G14-ST402
Drawing No: ST402 Rev.
Scale: 1"=20'
Page No. 101 of 180

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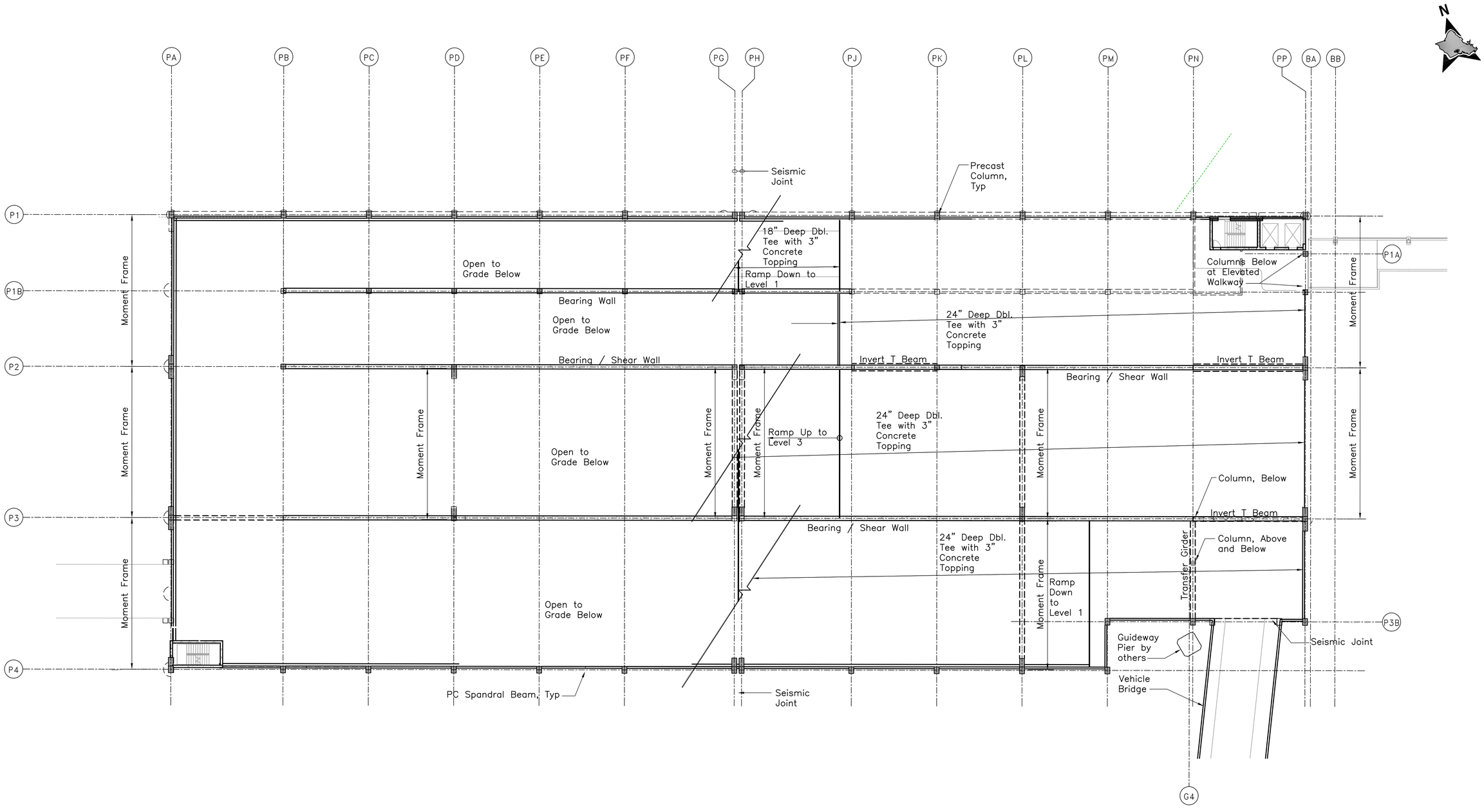

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: J Fujita
Drawn: J Tamanaha
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Approved: E Sugiyama
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

PARKING STRUCTURE AND BUILDING PLANS

PARKING LEVEL - 2 FRAMING PLAN

Contract No.: SC-245
CADD File: SC4D-G14-ST403
Drawing No: ST403 Rev.
Scale: 1"=20'
Page No. 102 of 180

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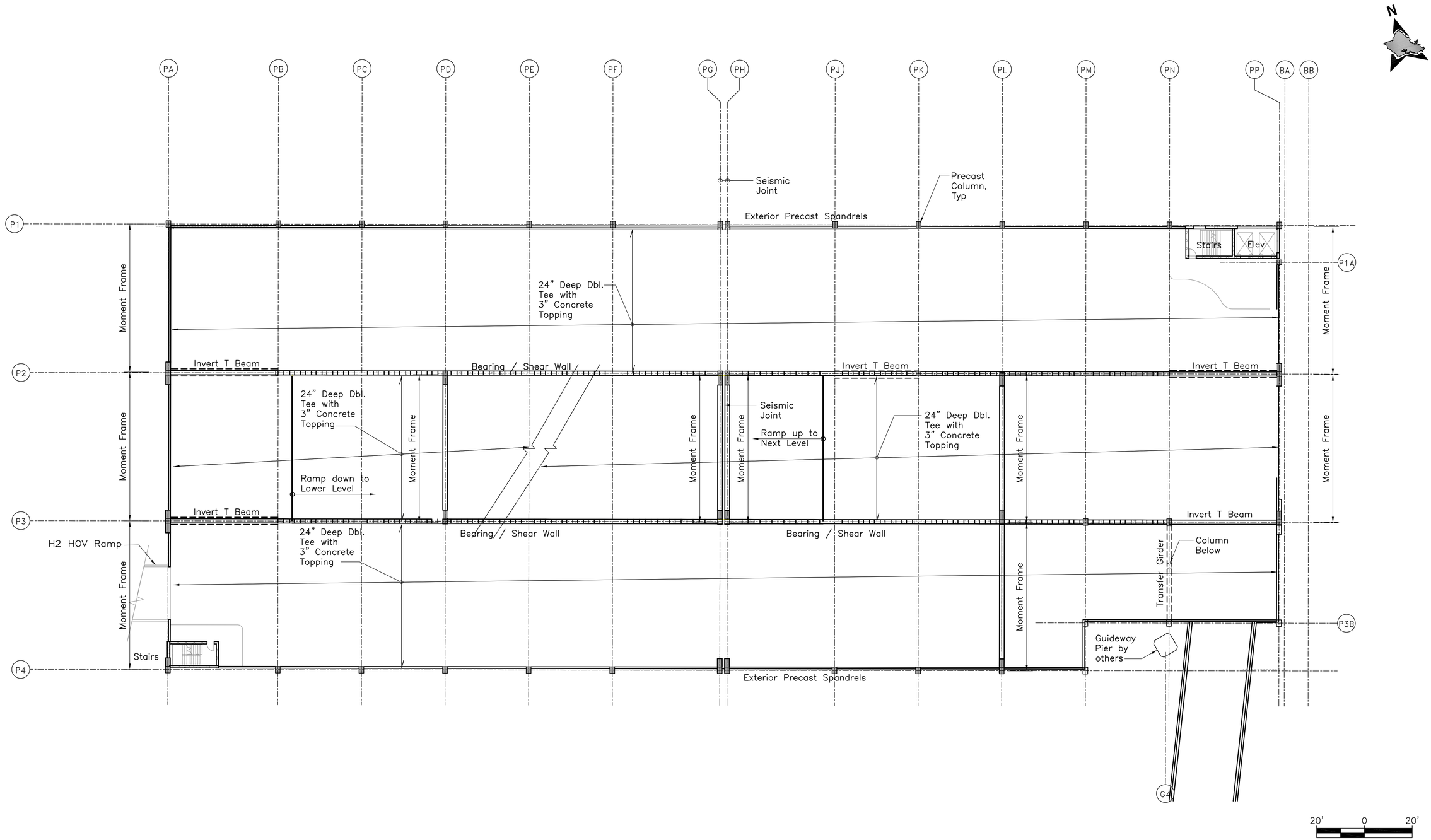

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: J Fujita
Drawn: J Tamanaha
Checked: K Hayashida
Approved: E Sugiyama
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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Subconsultant:

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PEARL HIGHLANDS STATION

PARKING STRUCTURE AND BUILDING PLANS

PARKING LEVEL - 3 FRAMING PLAN

Contract No.: SV–245
CADD File: SC4D–G14–ST404
Drawing No: ST404 Rev.
Scale: 1"=20'
Page No. 103 of 180

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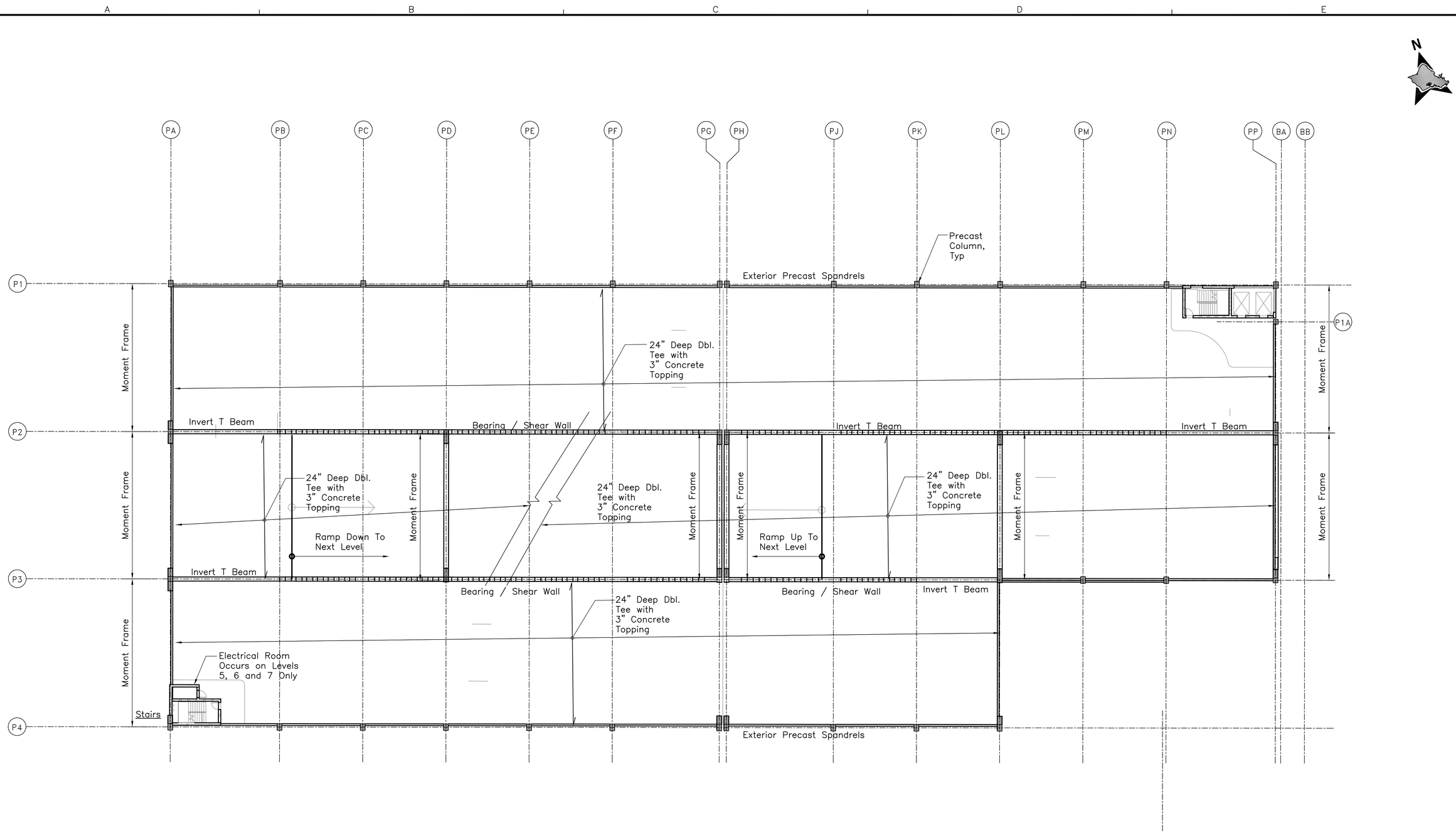

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: J Fujita
Drawn: J Tamanaha
Checked: K Hayashida
Approved: E Sugiyama
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

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PEARL HIGHLANDS STATION

PARKING STRUCTURE AND BULDING PLANS

PARKING LEVELS 4, 5, 6 AND 7 FRAMING PLAN

Contract No.: SV-245
CADD File: SC4D-G14-ST405
Drawing No: ST405 Rev.
Scale: 1"=20'
Page No. 104 of 180

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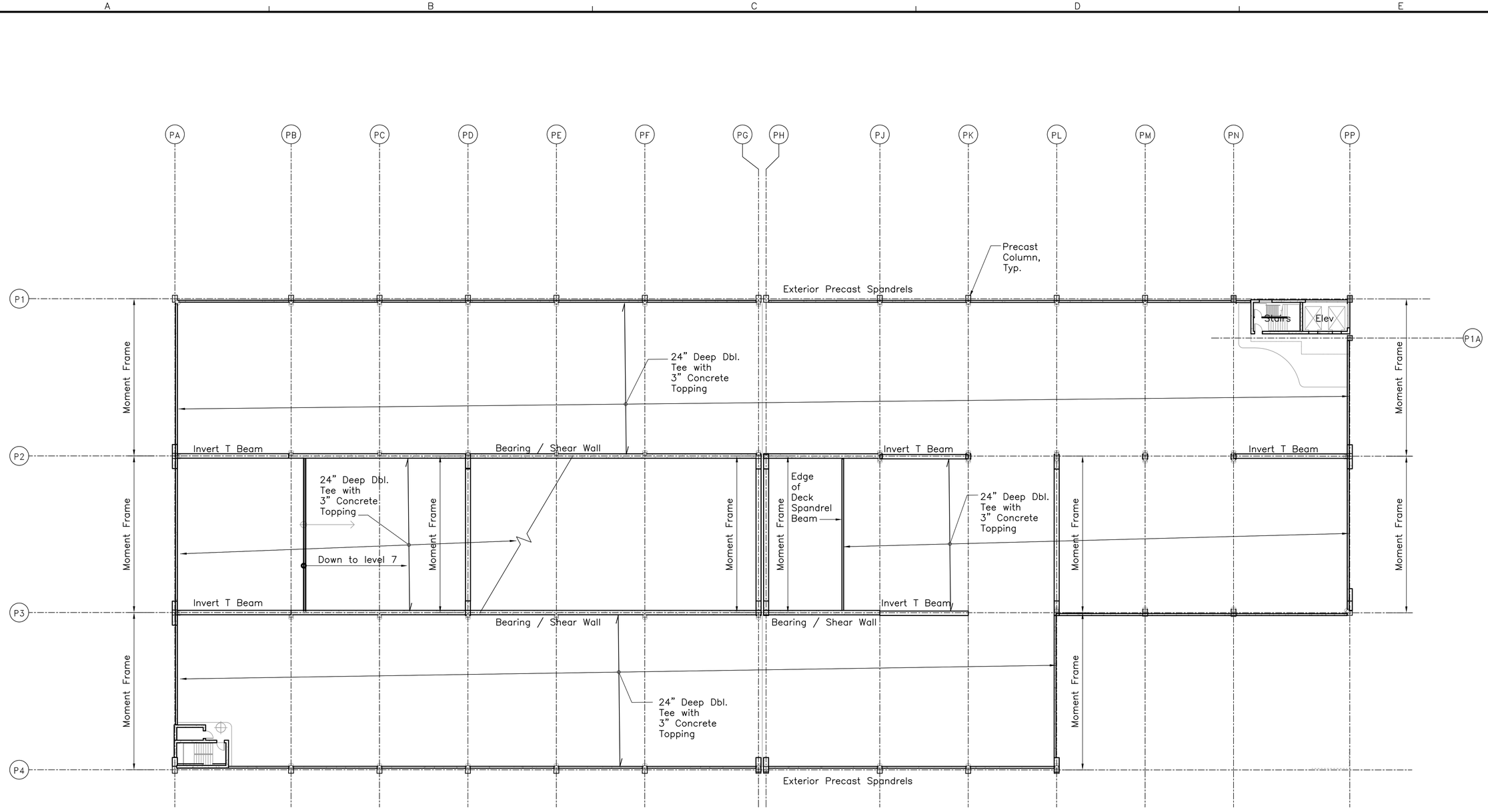

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Rev	By	Date	Description

Designed: J Fujita
Drawn: J Tamanaha
Checked: K Hayashida
Approved: E Sugiyama
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: KAI HAWAII STRUCTURAL & FORENSIC ENGINEERS

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PEARL HIGHLANDS STATION

PARKING STRUCTURE AND BUILDING PLANS

PARKING ROOF LEVEL FRAMING PLAN

Contract No.: SV-245
CADD File: SC4D-G14-ST406
Drawing No: ST406 Rev.
Scale: 1"=20'
Page No. 105 of 180

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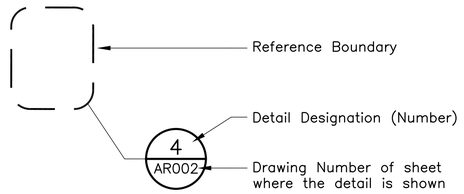
GENERAL ARCHITECTURAL NOTES

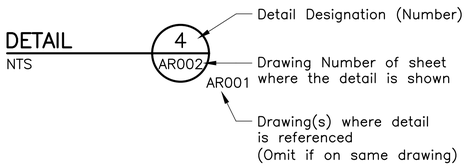
ARCHITECTURAL SYMBOLS

N

NORTH ARROW
(Location – upper right corner of drawing)

DETAILS





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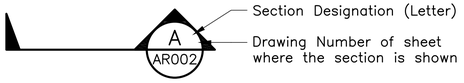
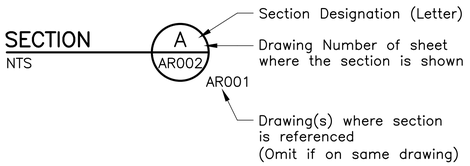
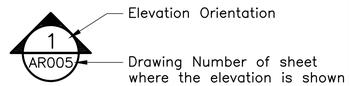
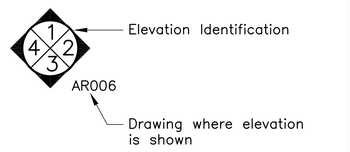




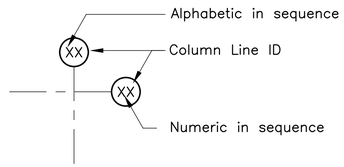
EXTERIOR ELEVATION(S)



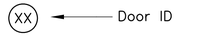
INTERIOR ELEVATION(S)



COLUMN LINE GRID INDICATOR



DOOR OPENING IDENTIFIER



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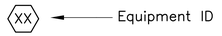

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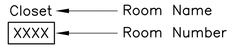
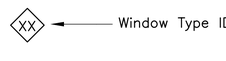


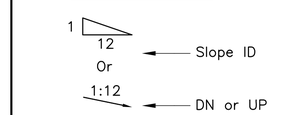
WALL TYPE IDENTIFIER

WINDOW IDENTIFIER



LOUVER IDENTIFIER

SLOPE IDENTIFIER



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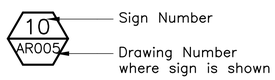

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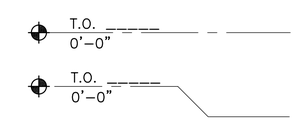

HATCH

- Brick
- Concrete Masonry Unit
- Concrete
- Composite Panel
- Earth
- Finished Stone
- Gravel
- Insulation (Batt)
- Insulation (Rigid)
- Metal
- Plywood
- Precast Concrete
- Sand, Grout, Mortar, Plaster
- Tile
- Glass (Elevation)

GENERAL SYMBOLS

&	And
@	At
#	Number
ø	Diameter
%	Percent
=	Equal to
>	Greater Than
<	Less Than
≥	Greater Than or Equal To
≤	Less Than or Equal To

Station Equation

Profile Grade Line (PGL) Elevation at Centerline of Track on Tangents and on Low Rail for Spirals and Curves

SPECIAL TERMS

Makai	Ocean
Mauka	Mountain

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: K Parmar
Drawn: E Birnhaum
Checked: T Man
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

GENERAL ARCHITECTURAL NOTES, SYMBOLS, AND ABBREVIATIONS

SHEET 1 OF 3

Contract No.: SV–245
CADD File: SC4–H01–AG001
Drawing No.: AG001 Rev.
Scale: NTS
Page No. 106 of 180

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ARCHITECTURAL ABBREVIATIONS

AB	Anchor Bolt
Abnd	Abandoned
Abt	About
Abv	Above
Ac	Acre(s)
Acc	Access
Acous	Acoustical
AD	Area Drain
ADA	Americans with Disabilities Act
Addl	Additional
Adh	Adhesive
Adj	Adjacent, Adjust, Adjustable
A/E	Architect/Engineer
AFC	Automatic Fare Collection
AFF	Above Finished Floor
Aggr	Aggregate
Ahd	Ahead
Alum	Aluminum
Alt	Alternate, Alternative
Anch	Anchor
Anod	Anodized
AP	Access Panel
App	Approved
Approx	Approximate
Arch.	Architect, Architectural
ARV	Air Relief Valve
ASC	Above Suspended Ceiling
Asph	Asphalt
Assm	Assembly
ASTM	American Society for Testing & Materials
Auto	Automatic
Aux	Auxiliary
Ave	Avenue
Avg	Average
℄	Baseline
Bal	Balance
BC	Bottom of curb
Bd	Board
Beg	Begin, Beginning
Bet	Between
Bitum	Bituminous
Bldg	Building
Blk	Block, Black
Blkg	Blocking
Blvd	Boulevard
Blw	Below
Bk	Back
BM	Benchmark
Bm	Beam
Bol	Bollard
Bot	Bottom
BP	Back Plaster/Plastered
Br	Bridge
Brz	Bronze
BS	Bottom of Slope, Both Sides
Bsmt	Basement
Btw	Between
Bvl	Beveled
℄	Centerline
C	Cable, Celsius
Cab	Cabinet
Cal	Caliper
Cap	Capacity
CB	Catch Basin
CCTV	Closed–circuit television
Cem	Cement
Cer	Ceramic
CF	Cubic Feet
CG	Corner Guard
Cham	Chamfer
Chk	Check
CI	Cast Iron
CIP	Cast–in–Place
Circ	Circle, Circular
Circum	Circumference
CJ	Construction Joint, Control Joint
CL	Chain Link
Clg	Ceiling

Clkg	Caulking
Clo	Closet
Clr	Clear, Clearance
cm	Centimeter
CMU	Concrete Masonry Unit
Cnd	Conduit
Cntr	Counter
CO	Cleanout
Col	Column
Comm	Communication
Comp	Composite,Component,Comparable,Composition
Conc	Concrete
Cond	Condition, Conduit
Conf	Confirm, Confirmation, Conference
Conn	Connect, Connection, Connector
Const	Construction
Cont	Continuous, Continue
Contd	Continued
Corr	Correction, Corrugated, Corridor
Coord	Coordinate
Cpr	Copper
CR	Card Reader
CT	Ceramic Tile
Ctr	Center
Ctsk	Countersunk
Cu	Cubic
CY	Cubic Yard
Cyl	Cylinder
D	Depth
D.B.G.	Distance Between Guides
Dbl	Double
DD	Down Drain
Deg	Degree
Dept	Department
Desc	Description
Det	Detail
DF	Drinking Fountain
DI	Drain Inlet
Dia	Diameter
Diag	Diagonal, Diagram
Diaph	Diaphragm
Dim	Dimension
Dir	Direction
Disp	Dispenser
Div	Division
Dn	Down
DO	Door Opening
Dr	Door
DS	Downspout
DTA	Dovetail Anchor
DTS	Dovetail Anchor Slot
Dwg	Drawing
Dwy	Driveway
E	East, Electrical
ea	Each
EB	Expansion Joint, Eastbound
EE	Each End
EF	Each Face
EJ	Expansion Joint
El	Elevation
Elec	Electrical
Elev	Elevator
Emer	Emergency
EMP	Emergency Management Panel
Encl	Enclosure
Eq	Equal
Eqmt	Equipment
Esc	Escalator
etc	Et cetera
EW	Each Way
Exh	Exhaust
Exist	Existing
Exp	Expansion
Expo	Exposed
Ext	Exterior, External

F	Fahrenheit, Front
FA	Fire Alarm
FAB	Fire Alarm Box
FAC	Fire Alarm Conduit
FAI	Fresh Air Intake
FB	Flat Bar
FBO	Furnished by Others
FC	Flexible Connection
FCO	Floor Cleanout
FD	Floor Drain
Fdn	Foundation
FE	Fire Extinguisher
FEC	Fire Extinguisher Cabinet
FFE	Finish Floor Elevation
FFL	Finish Floor Line
FG	Finish Grade
FH	Fire Hydrant, Flat Head
FHC	Fire Hose Cabinet
FHV	Fire Hose Valve
Fig.	Figure
Fin	Finish
Fl	Floor
Flex	Flexible
Flg	Flashing
Fluor	Fluorescent
FOC	Face of Concrete
FOF	Face of Finish
FOM	Face of Masonry
FOS	Face of Studs
FP	Fire Protection
Fprf	Fireproof
FR	Fire–rated
FS	Full Size, Fire Service
ft	Foot, Feet
Ftg	Footing
Furr	Furring
Fut	Future
Fwy	Freeway
G	Gas
Ga	Gauge
gal	Gallon
Galv	Galvanized
Gar	Garage
GB	Gypsum Board
Gen	General
GFRC	Glass Fiber Reinforce Concrete
Gl	Glass
GM	Gas Meter
Gnd	Ground
Grl	Grille
Grn	Granite
GSM	Galvanized Sheet metal
Gyp	Gypsum
H	High, Horizontal
HB	Hose Bibb
HD	Heavy–duty
Hdcp	Handicap–ADA Compliant
HDOT	Hawaii Department of Transportation
HDPE	High–Density Polyethylene (membrane)
Hdr	Header
Hdw	Hardware
Hex	Hexagonal
HFD	Honolulu Fire Department
HH	Handhole
HM	Hollow Metal
Horiz	Horizontal
HP	High Point, High Pressure
HPD	Honolulu Police Department
HR	Handrail
Hr	Hour
Ht	Height
HVAC	Heating, Ventilation & Air Conditioning
HWP	High Working Point
Hwy	Highway
Hydr	Hydraulic

I	Iron
ID	Inside Diameter, Identification
IE	Invert Elevation
IF	Inside Face
in.	Inch
Incl	Included, Including, Inclusive
Inf	Information
Inst	Install, Instrument
Insul	Insulation
Int	Interior, Internal
Inv	Invert
Jan	Janitor
JB	Junction Box
JC	Janitor's Closet
Jct	Junction
JF	Joint Filler
Jt(s)	Joint(s)
kg	Kilogram
KP	Knockout Panel
KO	Knock Out
L	Length
LA	Landscape Architect
Lam	Laminate
Lat	Latitude, Lateral
Lav	Lavatory
LB	Pound (unit of measurement)
LC	Landscape Contractor
LF	Linear Foot
Lg	Long
LH	Left Hand
Lin	Linear
Lkr	Locker
Ln	Lane
Loc	Location
Long	Longitude, Longitudinal
LP	Low Point, Light Pole
Lt	Light, Left
Ltg	Lighting
Lvl	Level
LW	Lightweight
LWP	Low Working Point
L/T	Left Track
m	Meter (unit of measure)
Max	Maximum
MB	Mailbox
Mech	Mechanical
Med	Medium
Mem	Membrane
Met	Metal
Mezz	Mezzanine
Mfr	Manufacturer
MH	Manhole
Min	Minimum
Mir	Mirror
Misc	Miscellaneous
mm	Millimeter
MO	Masonry Opening
Mod	Modified
Mtd	Mounted
Mtg	Meeting, Mounting
Matl	Material
Mul	Mullion

N	North
N/A	Not Applicable
NB	Northbound
NE	Northeast
NIC	Not in Contract
No. (Nos.)	Number (Numbers)
Nom	Nominal
NR	Non–rated
NS	Near Side
NTS	Not to Scale
NW	Northwest
OA	Overall
Obs	Obscure
OC	On Center
OCS	Overhead Contact System
OD	Outside Diameter
OF	Outside Face
OH	Overhead
Op	Opaque
Opng	Opening
Opp	Opposite
OSA	Outside Supply Air
oz	Ounce
O to O	Out to Out
PNL	Panel
PA	Public Address, Police Alarm
Par	Parallel
Part	Partial
PB	Pullbox
PBX	Private Branch Exchange
PC	Precast Concrete
Ped	Pedestrian, Pedestal
Perf	Perforated
Perm	Permanent
PG	Profile Grade
Pg	Page
PGL	Profile Grade Line
Ph	Phase
PL	Property Line
Pl	Plate
Plas	Plaster
Platf	Platform
P Lam	Plastic Laminate
PLD	Plastic Duct
PLT	Plastic Tile
Plum	Plumbing
Plywd	Plywood
Pol	Police
Pr	Pair
Proj	Project, Projection
Prop	Property
PS	Point of Switch
PSF	Pounds Per Square Feet
PSI	Pounds Per Square Inch
Pt(s)	Point(s)
PTD/R	Paper Towel Dispenser & Receptacle
PVC	Polyvinyl Chloride
Pvmt	Pavement
Pwr	Power
QT	Quarry Tile
qt	Quart
Qty	Quantity
Quad	Quadrant

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: K Parmar
Drawn: E Birnbaum
Checked: T Man
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

GENERAL ARCHITECTRAL NOTES, SYMBOLS, AND ABBREVIATIONS

SHEET 2 OF 3

Contract No.: SV–245
CADD File: SC4–H01–AG002
Drawing No.: –AG002 Rev.:
Scale: N/A
Page No.: 107 of 180

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ARCHITECTURAL ABBREVIATIONS (CONTINUED)

R	Radius
RB	Resilient Base
RC	Reinforced Concrete
RCP	Reinforced Concrete Pipe
RD	Roof Drain
Rdwy	Roadway
Rect	Rectangle
Ref	Reference
Refl	Reflect, Reflected, Reflective, Reflector
Reinf	Reinforce, Reinforcing, Reinforcement
Repl	Replace
Reqd	Required
Resil	Resilient
Ret	Return, Retain, Retaining
Rev	Revised, Revision
Rfg	Roofing
RH	Right Hand
Rm	Room
RO	Rough Opening
ROW	Right–of–Way
Rt	Right
RT	Resilient Tile
R/T	Right Track
RW	Retaining Wall
S	South
San	Sanitary
SB	Southbound
SC	Solid Core
SCD	Seat Cover Dispenser
Sch	Schedule
SD	Soap Dispenser
SE	Southeast
Sect	Section
SF	Square Foot, Square Feet
SFP	Site Finish Plan
Sgl	Single
Sht	Sheet
Sim	Similar
SIP	Support in Place
SL	Street Light
SLC	Street Light Conduit
SLPB	Street Light Pull Box
SND	Sanitary Napkin Dispenser
SNR	Sanitary Napkin Receptacle
Spa.	Spaces, Spacing
Spec	Specification
Spkr	Speaker
Spr	Sprinkler
Sq	Square
SS	Service Sink, Stainless Steel
St	Street
Sta	Station, Stationing
Std	Standard
Stl	Steel
Stor	Storage
Str	Structure
Strl	Structural
Supv	Supervisor, Supervise
Susp	Suspended
SW	Southwest
SY	Square Yard
Sym	Symmetrical
Sys	System
T	Top
T.O.	Top of
T&B	Top and Bottom
Tan.	Tangent
TBD	To Be Determined
TC	Top of Curb
TCCR	Train Control & Communications Room
TD	Trench Drain
TDD	Telecommunications Device for the Deaf
Tel	Telephone
Tele	Telescoping
Temp	Temporary, Temperature
TG	Top of Grate
T&G	Tongue and Groove
Thk	Thick, Thickness
TL	Traffic Light
TOC	Top of Concrete
TOR	Top of Rail
TOS	Top of Steel
Tot.	Total
TOW	Top of Wall
TP	Top of Pavement
TPD	Toilet Paper Dispenser
TPSS	Traction Power Substation
Tr	Tread
TV	Television, Ticket Validator
TVM	Ticket Vending Machine
Typ	Typical
T/C	Top of Curb
T/R	Top of Rail
T/P	Top of Platform
UB	Utility Box
UC	Undercut
UD	Underdrain
Unf	Unfinished
Unk	Unknown
UNO	Unless Noted Otherwise
UPE	Under Platform Exhaust
UR	Urinal
UST	Underground Storage Tank
Util	Utility
UWP	Upper Working Point
V	Vertical
Vac	Vacuum
Var	Variable, Varies
VCT	Vinyl Composition Tile
Vent.	Ventilate, Ventilation
Vert	Vertical
Vest	Vestibule
Vlv	Valve
VMS	Variable Message Sign
VoIP	Voice over Internet Protocol
Vt	Vent
W	West, Wide, Width
w/	With
w/o	Without
WB	Westbound
WC	Water Closet
WCR	Wheel Chair Ramp
Wd	Wood
Whse	Warehouse
WI	Wrought Iron
Wk	Work
WL	Water Line
WM	Water Meter, Water Main
WP	Work Point
Wpf	Waterproof, Waterproofing
WSP	Wet Stand Pipe
Wt	Weight
Wtr	Water
WTW	Wall to Wall
WV	Water Valve
WWF	Welded Wire Fabric
WWM	Welded Wire Mesh

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: K Parmar
Drawn: E Birnbaum
Checked: T Man
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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Subconsultant:

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PEARL HIGHLANDS STATION

GENERAL ARCHITECTRAL NOTES, SYMBOLS, AND ABBREVIATIONS

SHEET 3 OF 3

Contract No.: SV–245
CADD File: SC4–H01–AG003
Drawing No: –AG003 Rev.
Scale: N/A
Page No. 108 of 180

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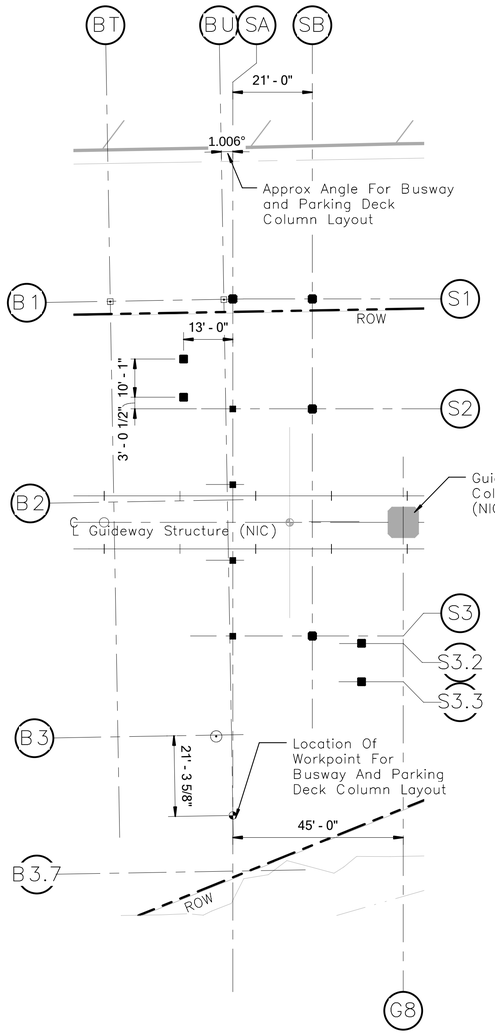
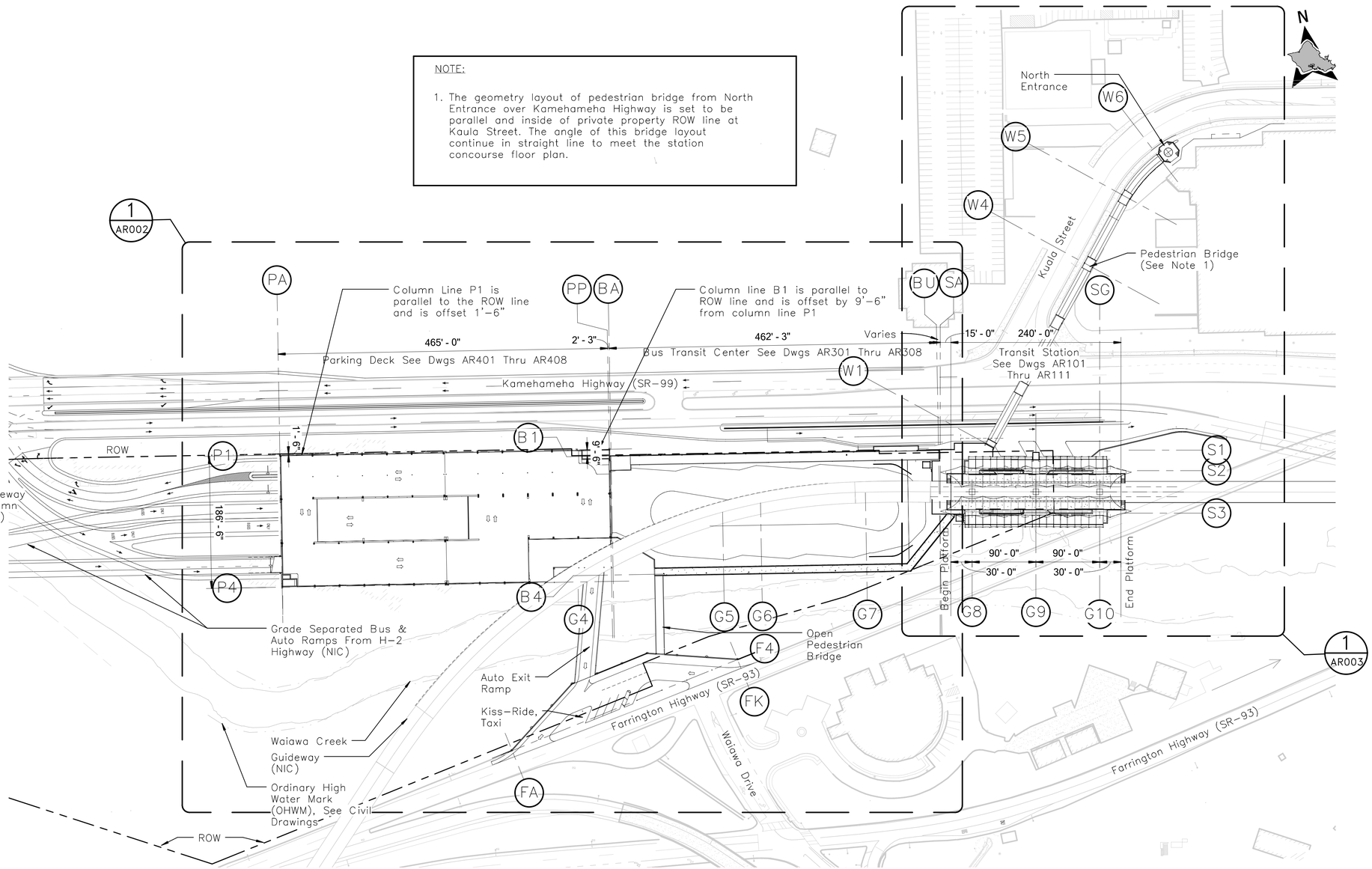
NOTE:

1. The geometry layout of pedestrian bridge from North Entrance over Kamehameha Highway is set to be parallel and inside of private property ROW line at Kaula Street. The angle of this bridge layout continue in straight line to meet the station concourse floor plan.



SITE LAYOUT PLAN DETAIL — 2 / AR001
1" = 20'-0"
20' 0 20'
AR101, AR102, AR103
AR301, AR302, AR303



SITE MASTER PLAN — 1 / AR001
1" = 80'-0"
80' 0' 80'

COLUMN LINE PREFIX DESIGNATIONS

P – Parking Deck
B – Bus Transit Center
S – Transit Station
F – Farrington Hwy Kiss Ride
W – Pedestrian Bridge
G – Guideway Structure

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

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PEARL HIGHLANDS STATION

ARCHITECTURAL SITE MASTER PLAN

Contract No.: SV-245
CADD File: SC4A-H02-AR001
Drawing No.: AR001 Rev:
Scale: As Noted
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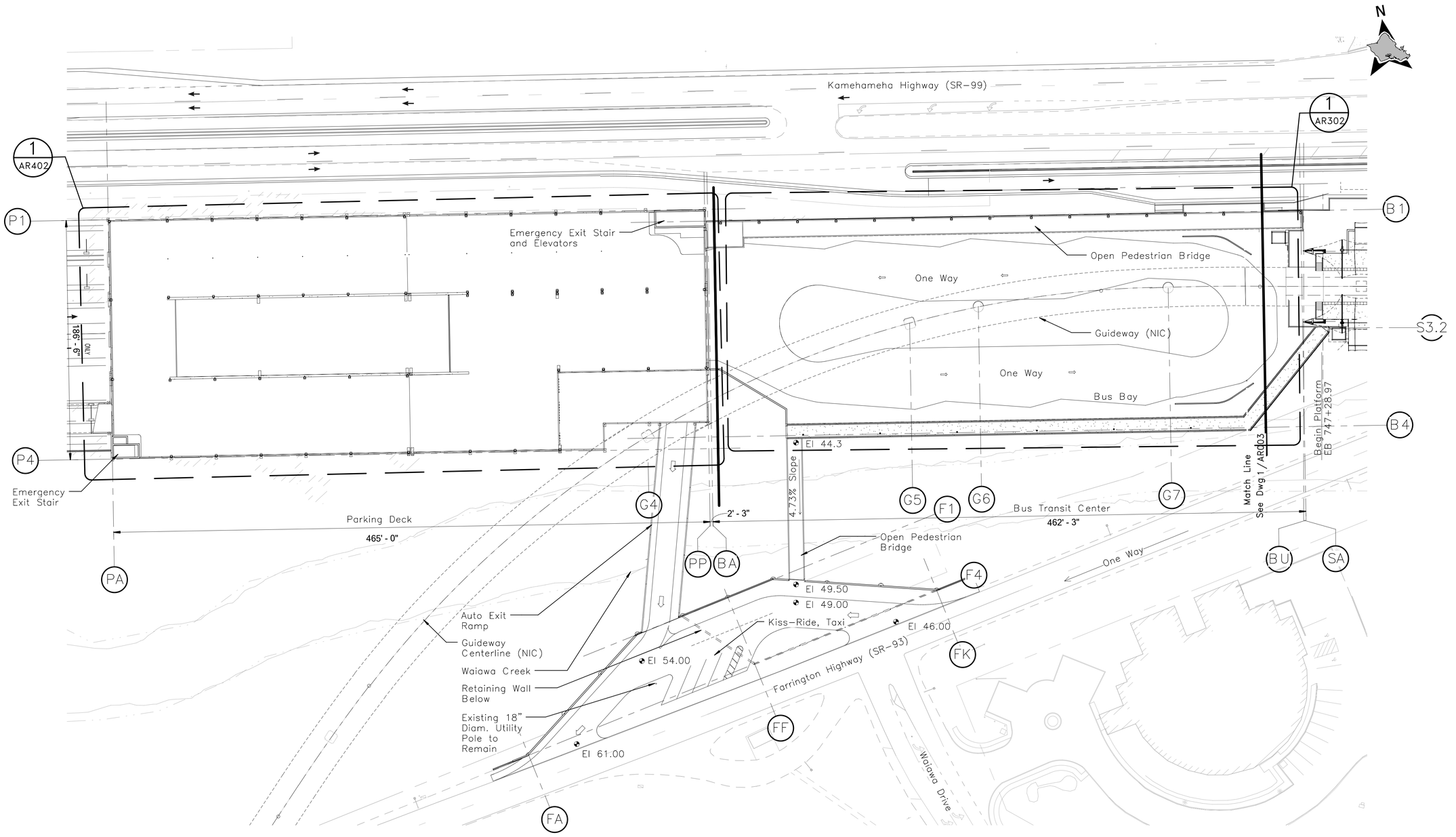

ARCHITECTURAL PLAN—AREA A (1 / AR002) AR001

40' 0' 40'

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

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PEARL HIGHLANDS STATION

ARCHITECTURAL SITE PLAN - AREA A

Contract No.: SV-245
CADD File: SC4A-H02-AR002
Drawing No.: AR002 Rev:
Scale: 1" = 40'-0"
Page No.: 110 of 180

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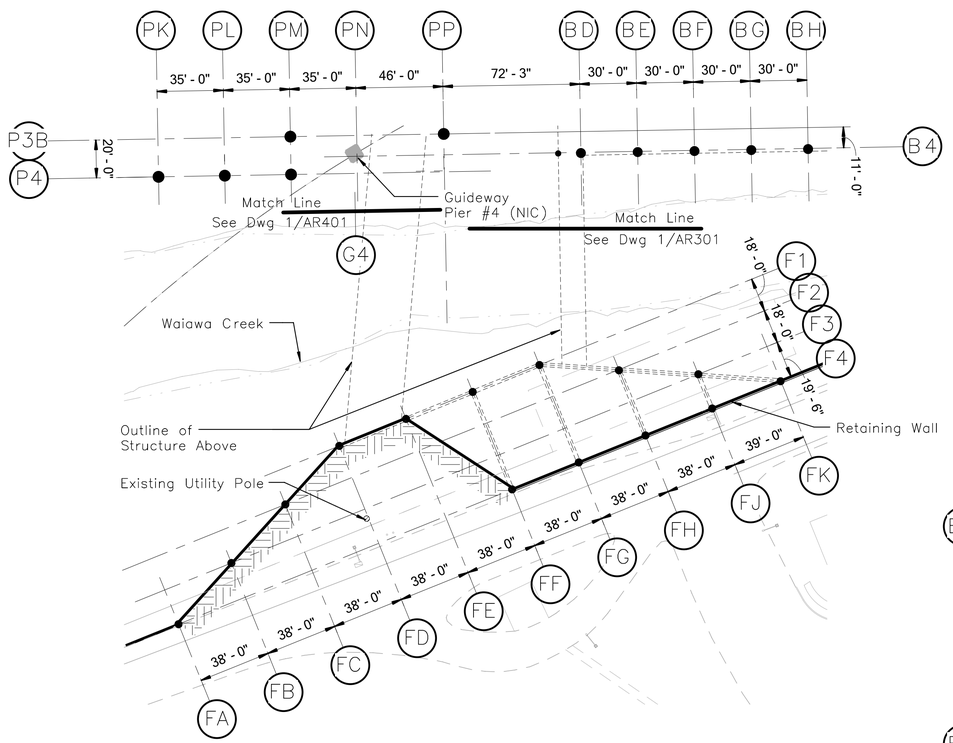
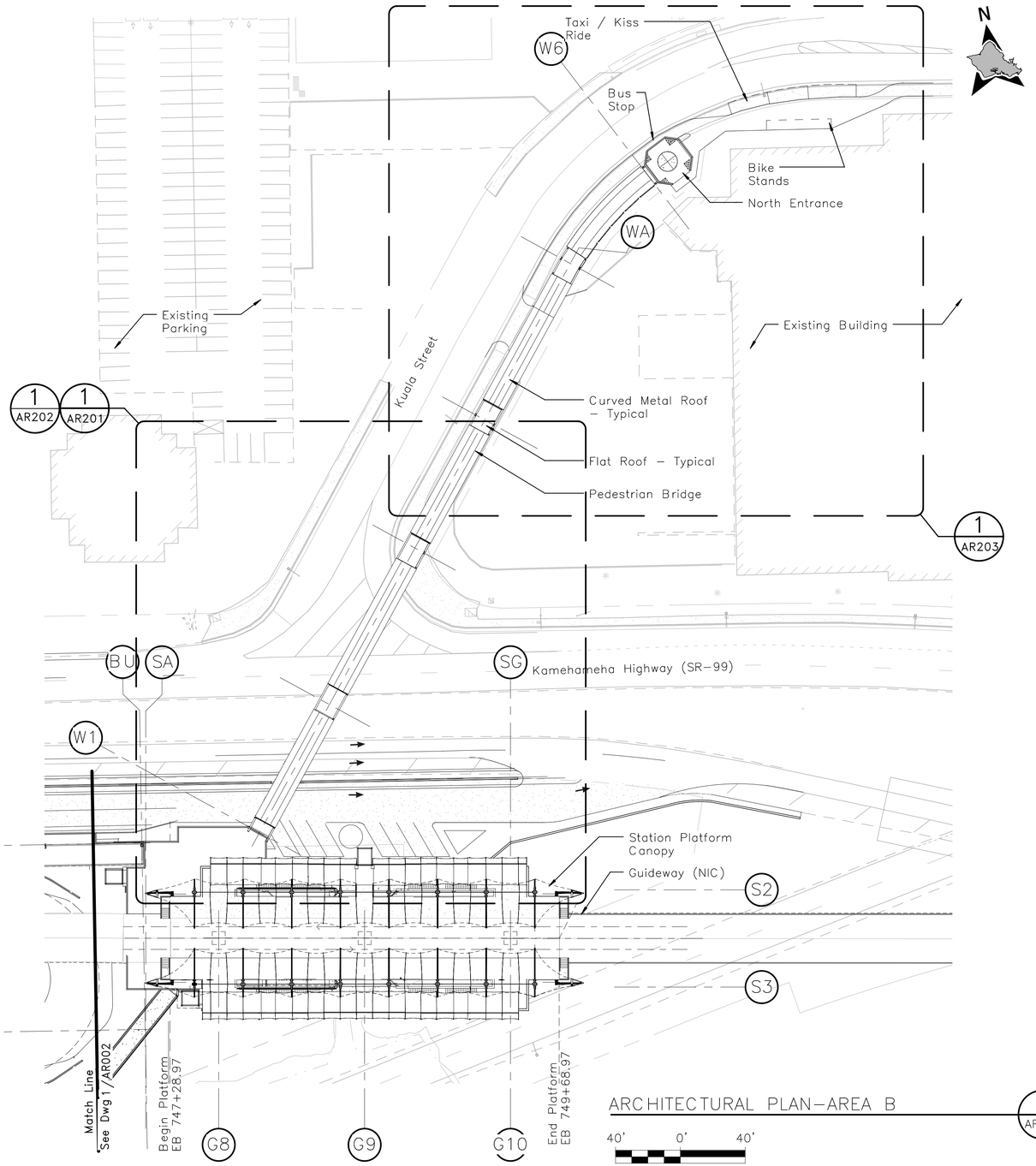


KISS RIDE AT FARRINGTON HWY
CREEK LEVEL PLAN — 2 / AR003

40' 0' 40'



ARCHITECTURAL PLAN–AREA B — 1 / AR003 AR001

40' 0' 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
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ARCHITECTURAL SITE PLAN - AREA B

Contract No.: SV–245
CADD File: SC4A–H02–AR003
Drawing No.: AR003 Rev:
Scale: 1" = 40'–0"
Page No. 111 of 180

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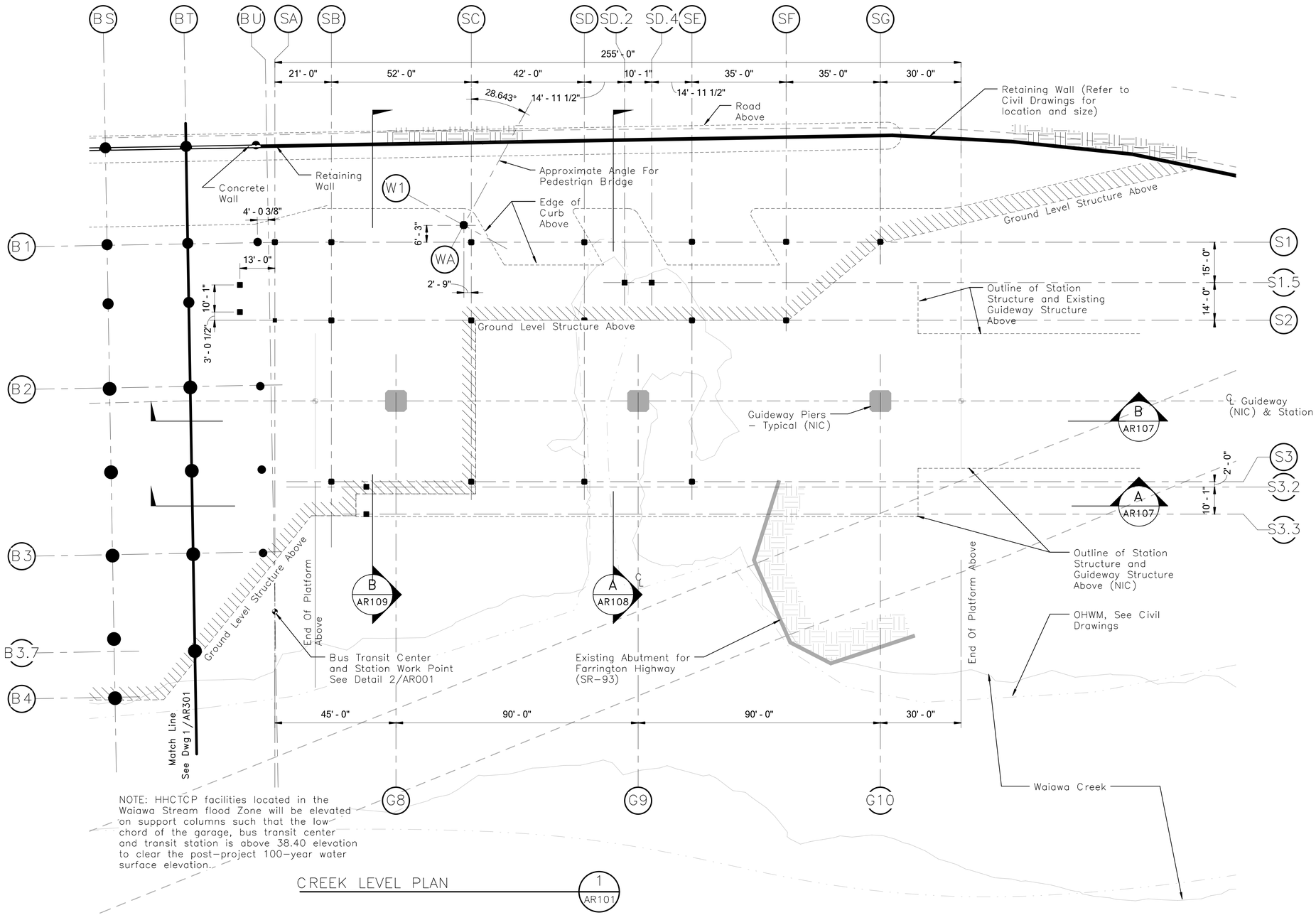

Rev	By	Date	Description

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Drawn: M Cooper Jr
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Date: 09-11-09

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PEARL HIGHLANDS STATION

TRANSIT STATION
CREEK LEVEL PLAN

Contract No.: SV-245
CADD File: SC4A-H03-AR101
Drawing No.: AR101 Rev:
Scale: 1"= 20'-0"
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GROUND LEVEL ROOM SCHEDULE	
Name	Area
Bus Super Rm	210 SF
Corr	793 SF
Elec	159 SF
Elev Equip Room	320 SF
Jan / Stor	347 SF
Mech Rm	226 SF
TC&C Room	1198 SF
Trash	52 SF
UPS/ Elec	523 SF
Grand total: 9	

NOTE:

1. Elevator Equipment Room is Sized to Serve Three (3) Transit Station Elevators.

2. Transit Station elevators are holeless hydraulic type.

GROUND LEVEL PLAN — 1 / AR102

20' 0 20'

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Rev	By	Date	Description

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Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
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PEARL HIGHLANDS STATION

TRANSIT STATION
GROUND LEVEL PLAN

Contract No.: SV-245
CADD File: SC4A-H03-AR102
Drawing No: AR102 Rev:
Scale: 1" = 20'-0"
Page No. 113 of 180

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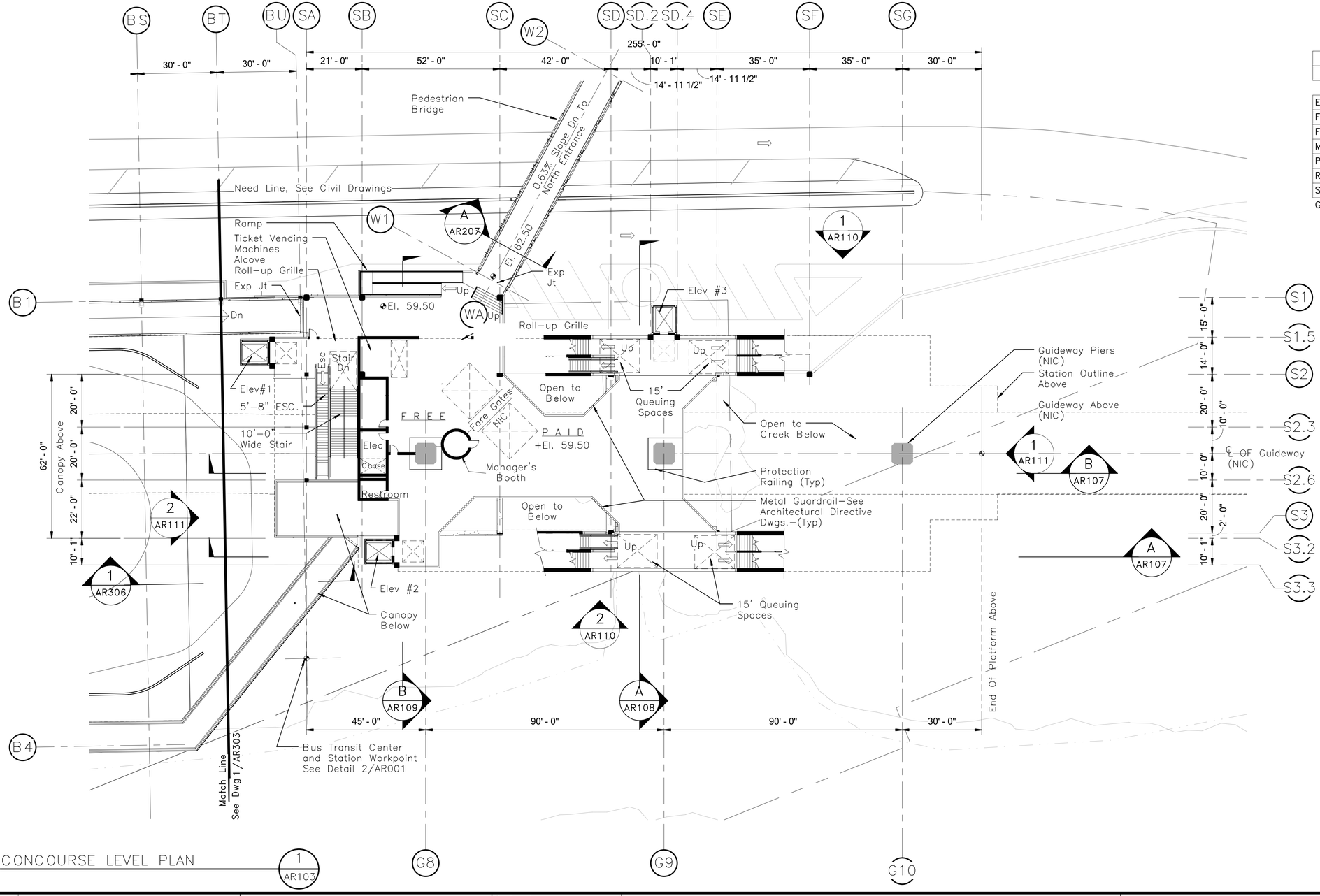
CONCOURSE LEVEL ROOM SCHEDULE	
Name	Area
Elec	164 SF
Fare Vending Machine Alcove	147 SF
Free Area	3233 SF
Manager's Booth	79 SF
Paid Area	5937 SF
Restroom	70 SF
Security Staff Rm	190 SF
Grand total: 7	



CONCOURSE LEVEL PLAN 1 AR103

Rev	By	Date	Description

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Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

TRANSIT STATION
CONCOURSE LEVEL PLAN

Contract No.: SV-245
CADD File: SC4A-H03-AR103
Drawing No: AR103 Rev:
Scale: 1" = 20'-0"
Page No. 114 of 180

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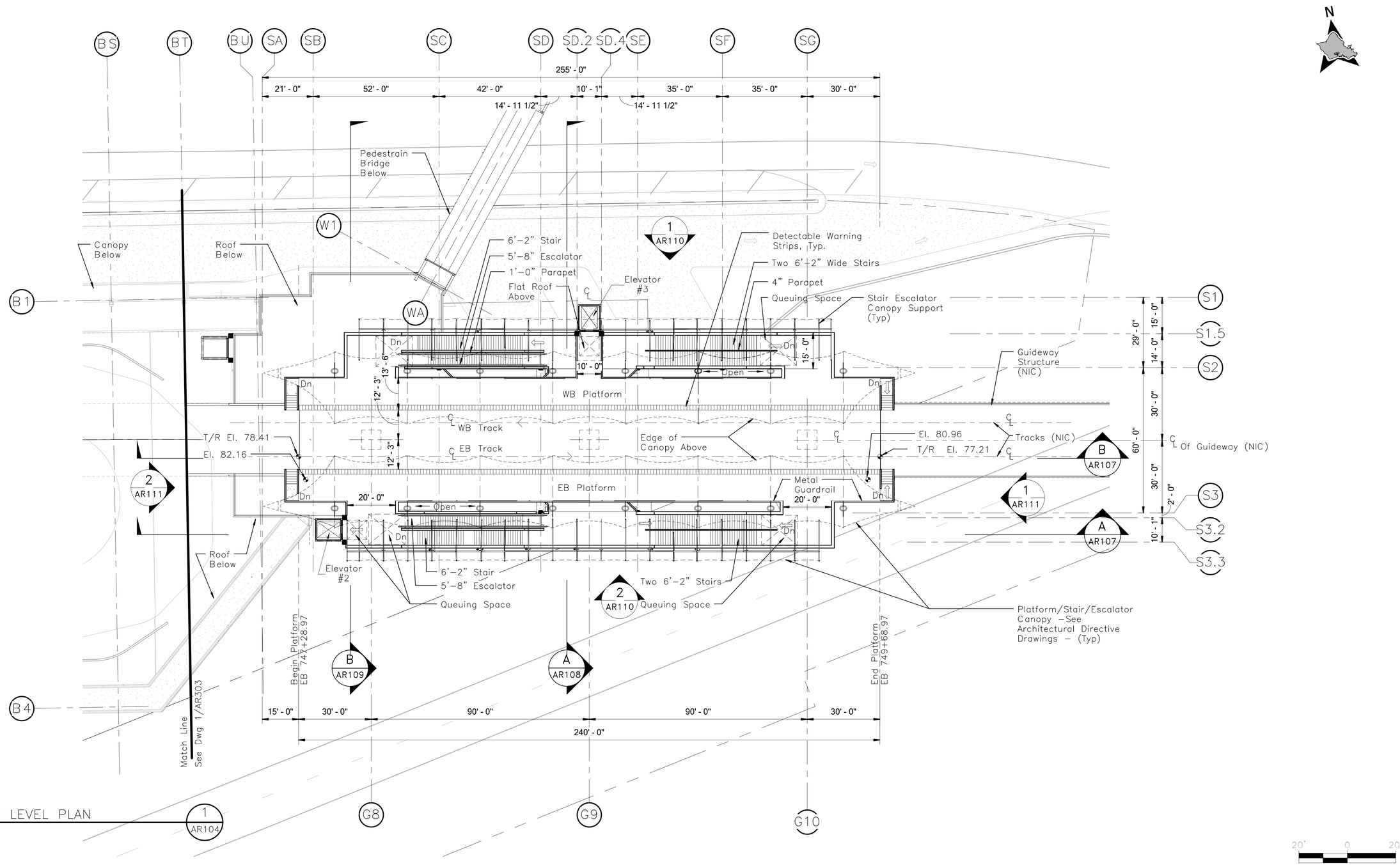

PLATFORM LEVEL PLAN — 1 AR104

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

TRANSIT STATION PLATFORM LEVEL PLAN

Contract No.: SV–245
CADD File: SC4A–H03–AR104
Drawing No.: AR104 Rev:
Scale: 1"= 20'–0"
Page No.: 115 of 180

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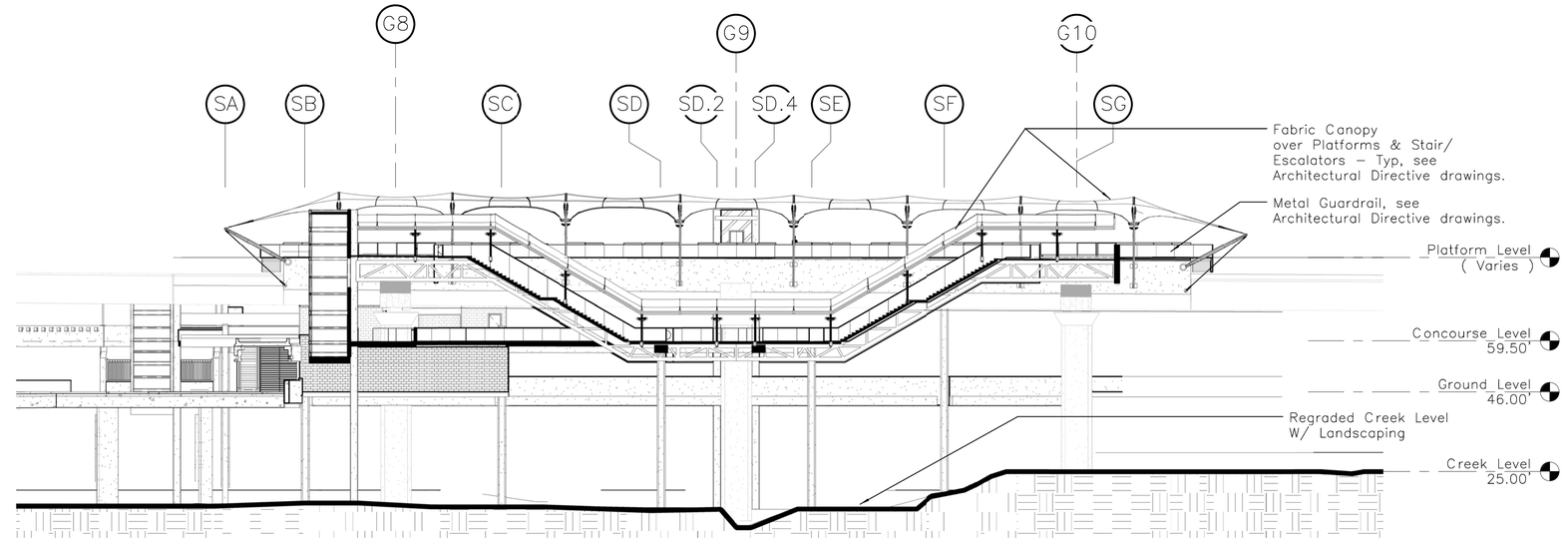
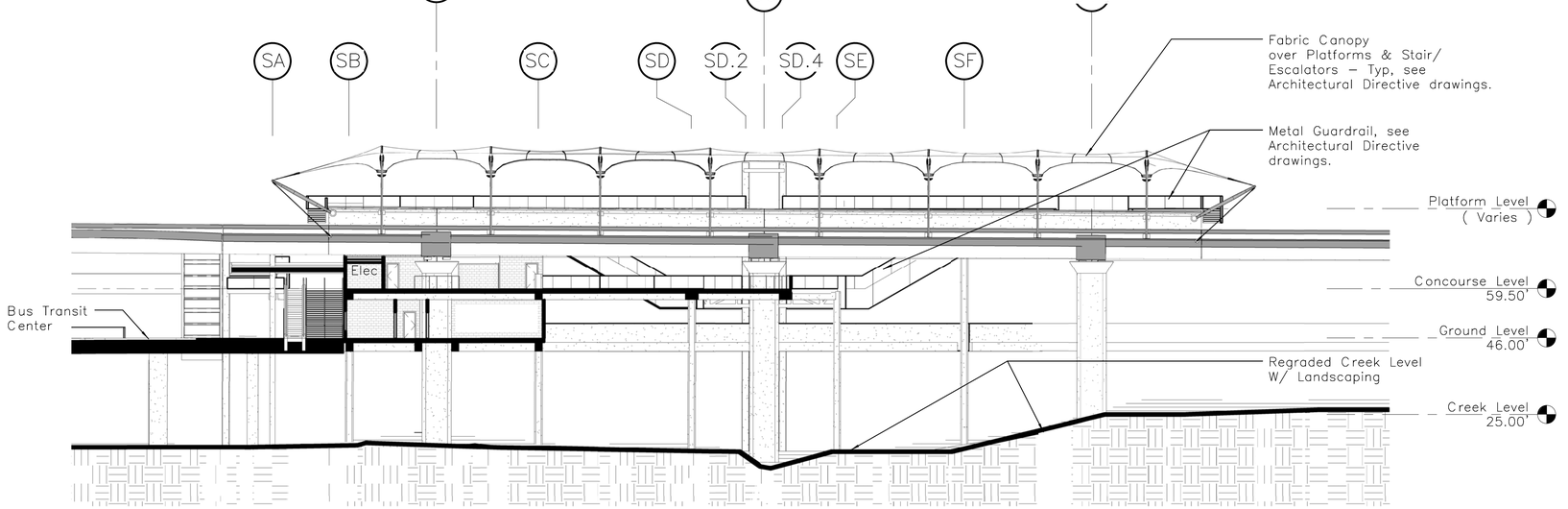


LONGITUDINAL SECTION A

A / AR107 — AR101, AR102, AR103, AR104



LONGITUDINAL SECTION B

B / AR107 — AR101, AR102, AR103, AR104

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
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PEARL HIGHLANDS STATION

TRANSIT STATION LONGITUDINAL SECTIONS

Contract No.: SV–245
CADD File: SC4A–H05–AR107
Drawing No.: AR107 Rev:
Scale: 1"= 20'–0"
Page No.: 116 of 180

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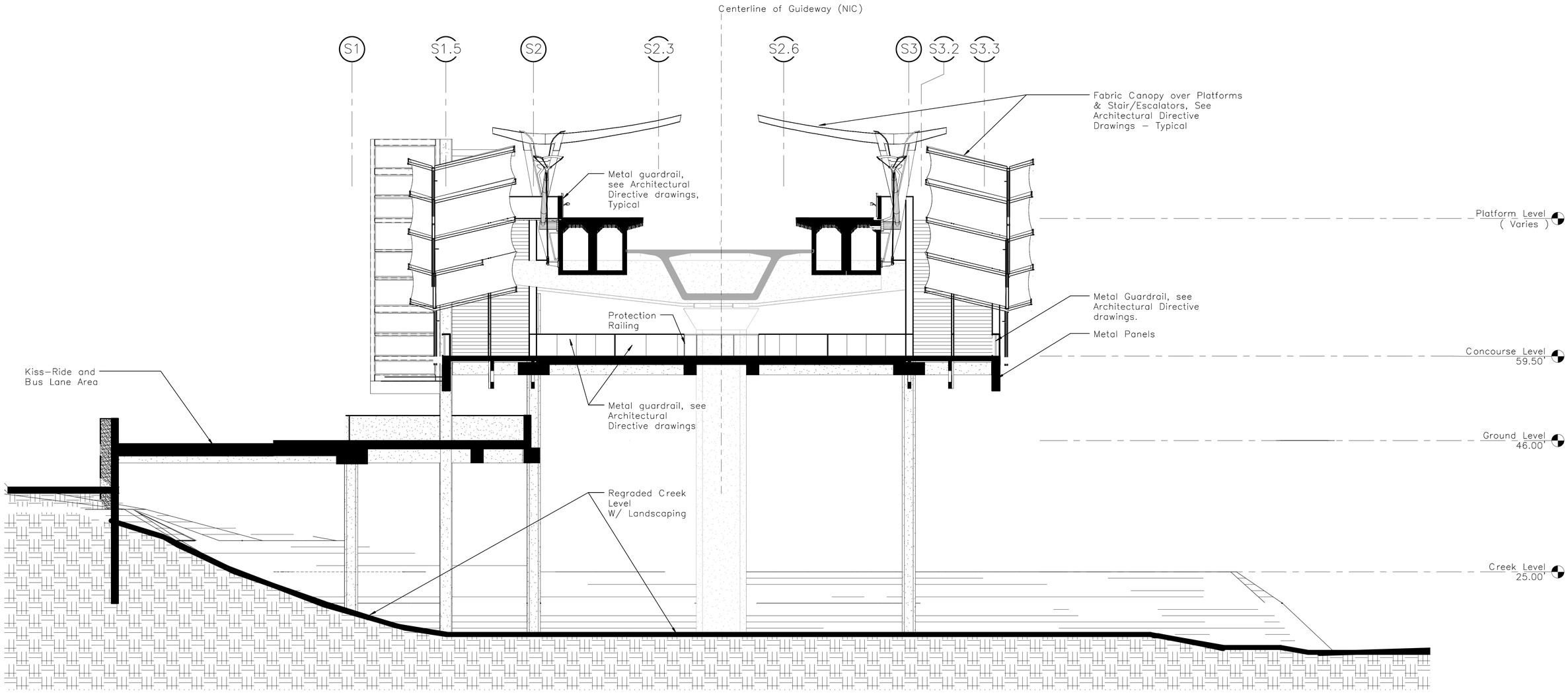

CROSS SECTION A

A
AR108/AR101, AR102, AR103, AR104

2' 0'2' 4 6' 10' 14'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Checked: D K Carty
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PEARL HIGHLANDS STATION

TRANSIT STATION CROSS SECTION

SHEET 1 OF 2

Contract No.: SV–245
CADD File: SC4A–H05–AR108
Drawing No: AR108 Rev:
Scale: 1/8"= 1'–0"
Page No. 117 of 180

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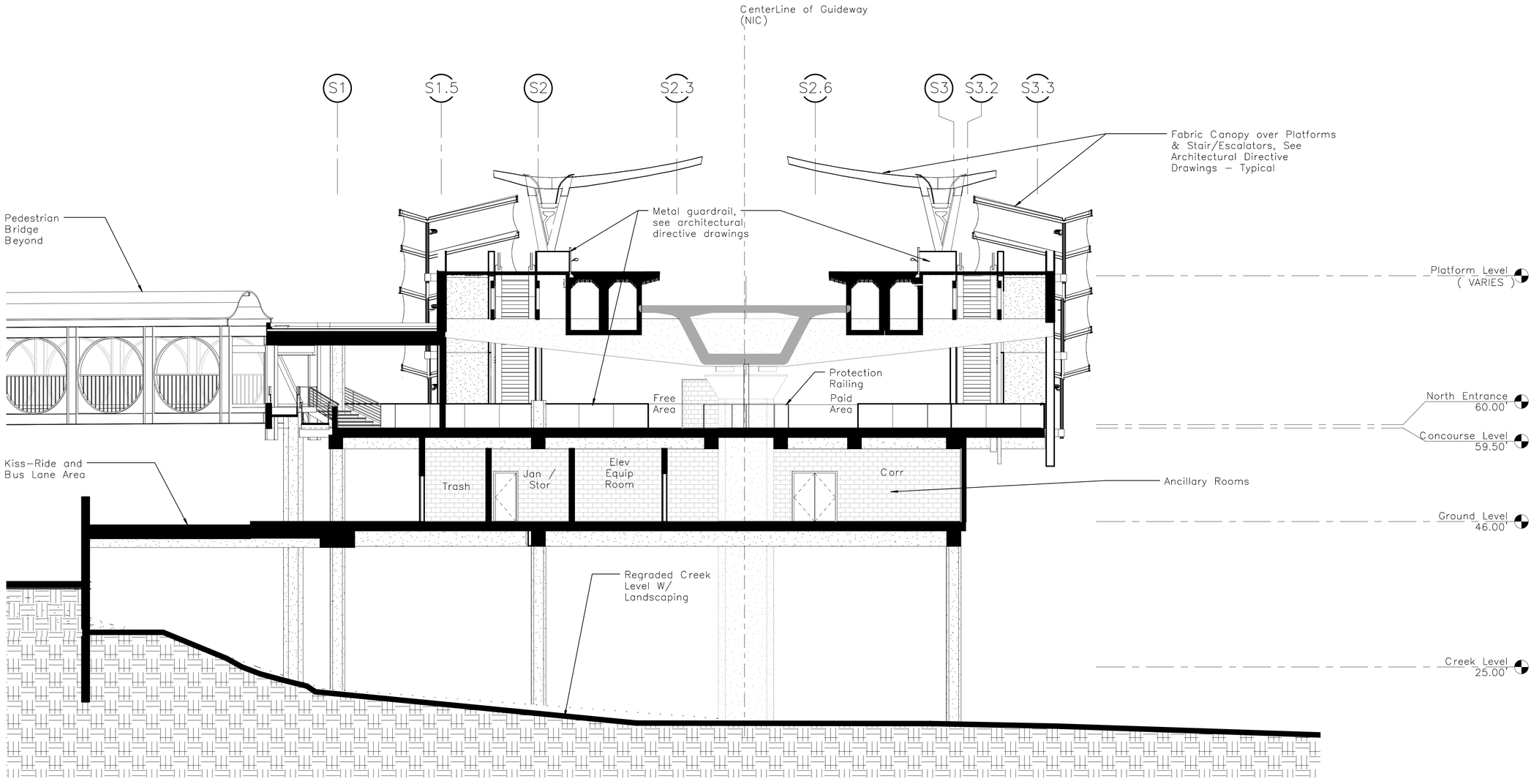

CROSS SECTION B

B
AR109 AR101, AR102, AR103, AR104

2' 0'2' 4 6' 10' 14'

Rev	By	Date	Description

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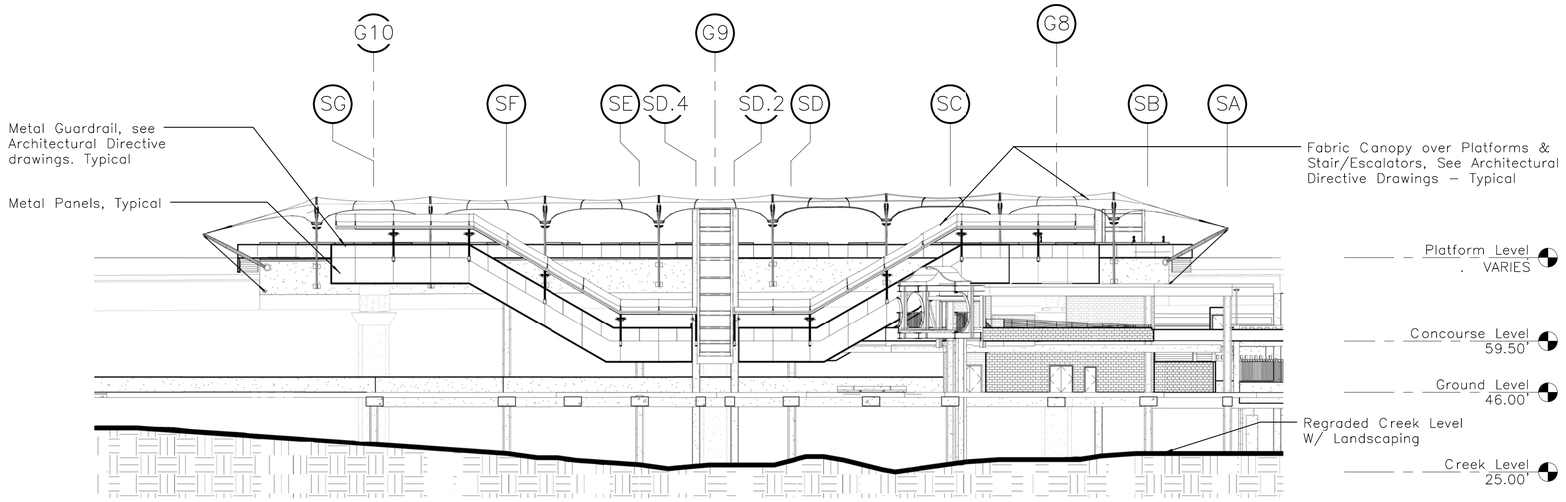
PEARL HIGHLANDS STATION

TRANSIT STATION CROSS SECTION

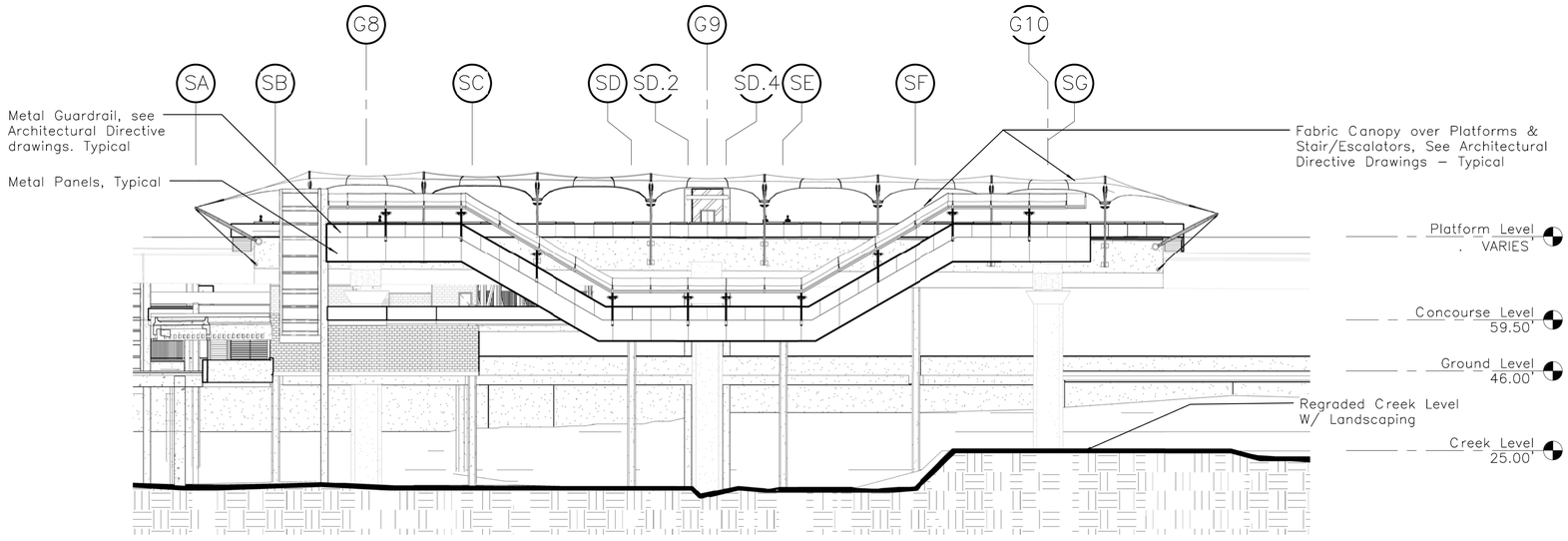
SHEET 2 OF 2

Contract No.: SV–245
CADD File: SC4A–H05–AR109
Drawing No.: AR109 Rev:
Scale: 1/8"= 1'–0"
Page No. 118 of 180

9/11/2009 2:08:14 PM T:\16471A – HHCTC\16471A – Pearl Highlands\A&B\DWG\Pearl Highlands Local Files\MCJ\Pearl Highlands Station_MCJ.rvt



NORTH ELEVATION — 1 / AR110 — AR102, AR103, AR104



SOUTH ELEVATION — 2 / AR110 — AR102, AR103, AR104

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

TRANSIT STATION ELEVATIONS

SHEET 1 OF 2

Contract No.: SV-245
CADD File: SC4A-H06-AR110
Drawing No.: AR110 Rev:
Scale: 1"= 20'-0"
Page No. 119 of 180

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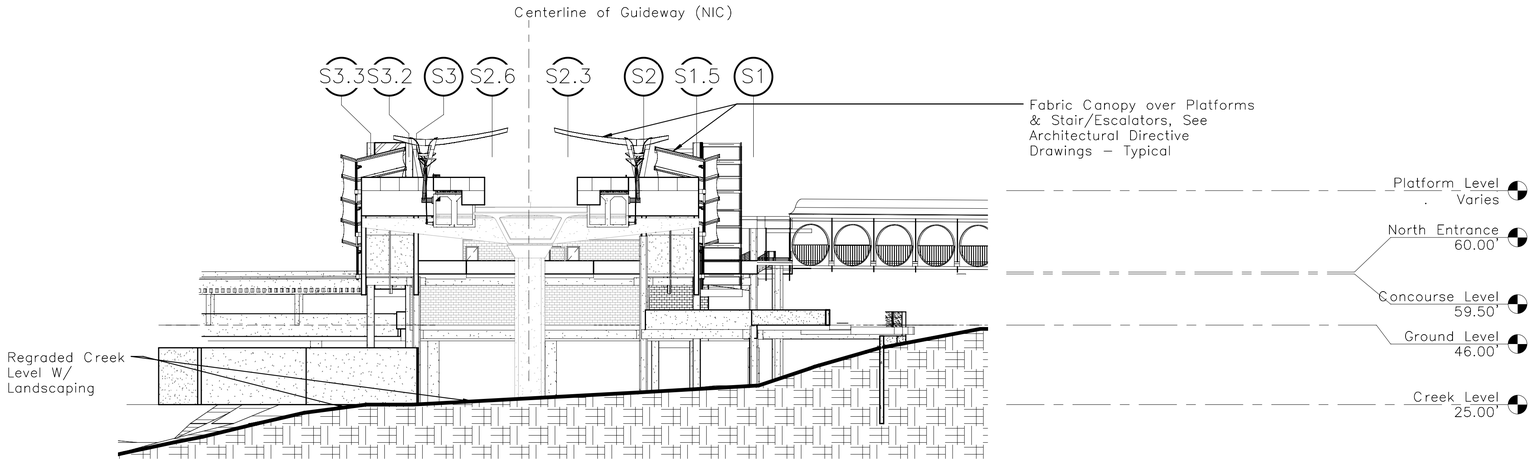
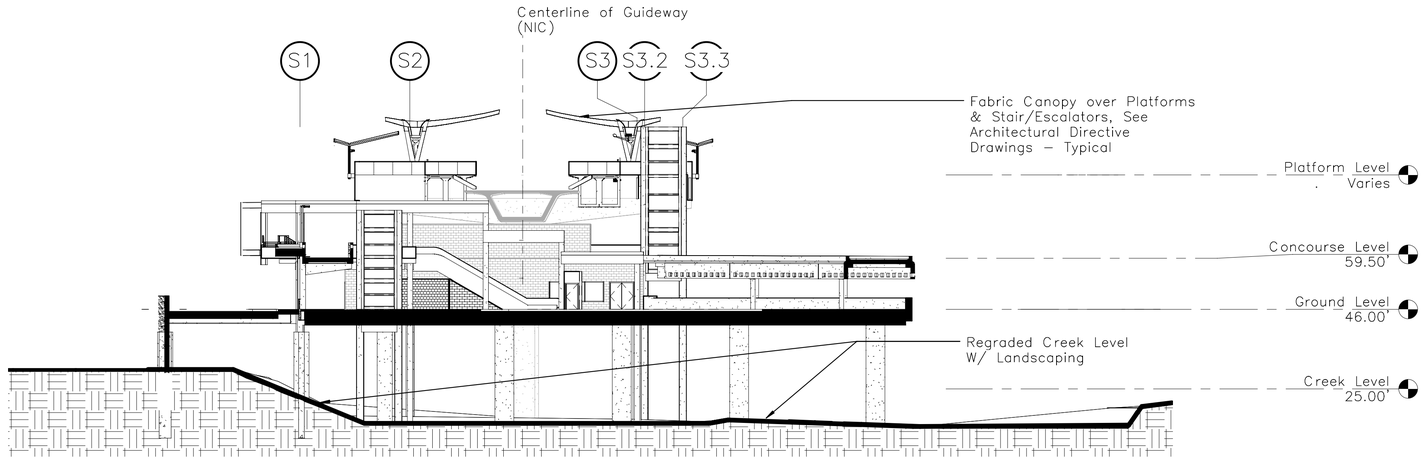


EAST ELEVATION — 1 / AR111 — AR102, AR103, AR104



WEST ELEVATION — 2 / AR111 — AR102, AR103, AR104 AR303

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

TRANSIT STATION ELEVATIONS

SHEET 2 OF 2

Contract No.: SV–245
CADD File: SC4A–H06–AR111
Drawing No.: AR111 Rev:
Scale: 1"= 20'–0"
Page No. 120 of 180

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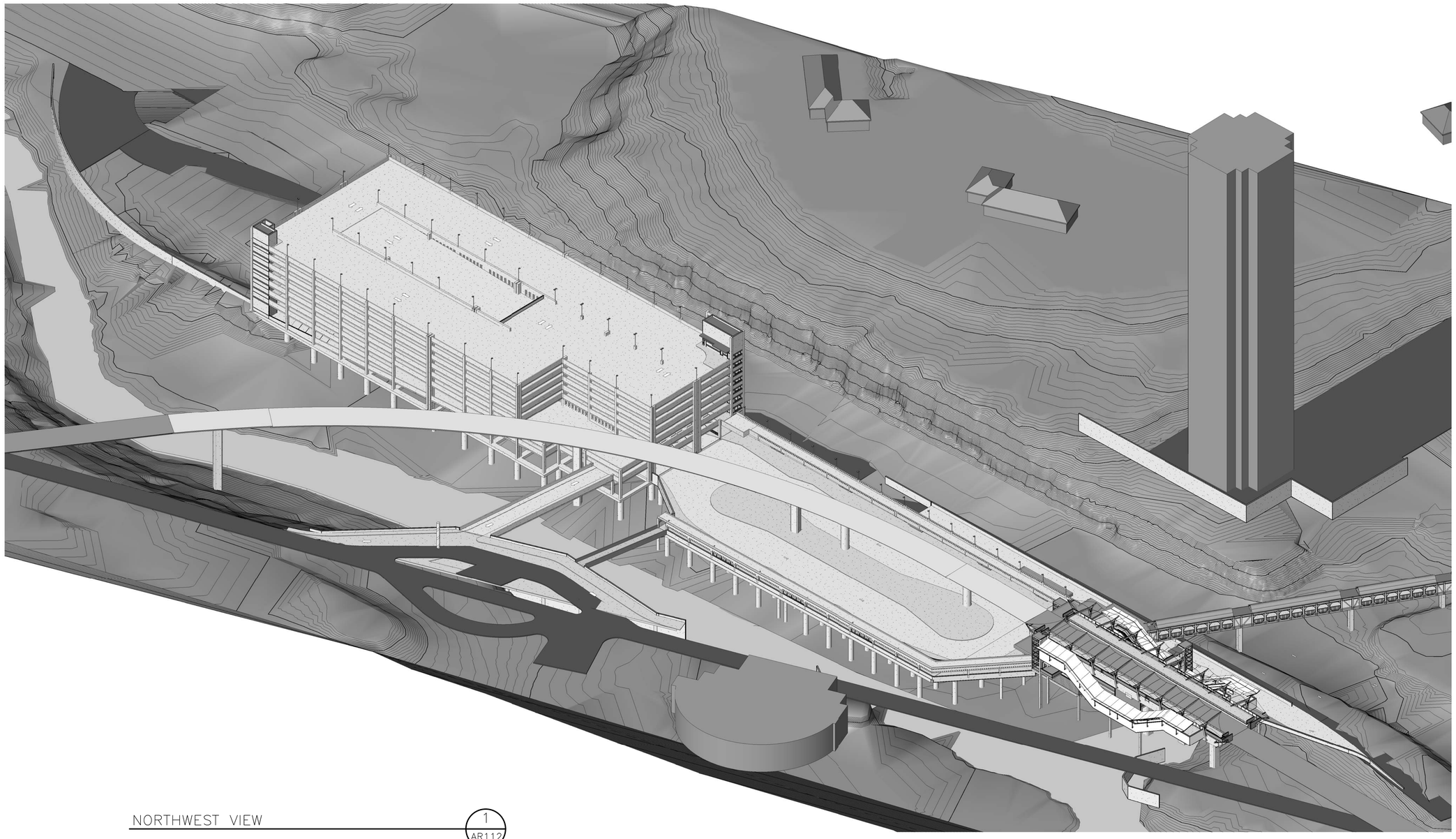

NORTHWEST VIEW

1
AR112

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Rev	By	Date	Description

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

TRANSIT STATION 3D VIEW

Contract No.: SV-245
CADD File: SC4A-H07-AR112
Drawing No.: AR112
Rev:
Scale: NTS
Page No. 121 of 180

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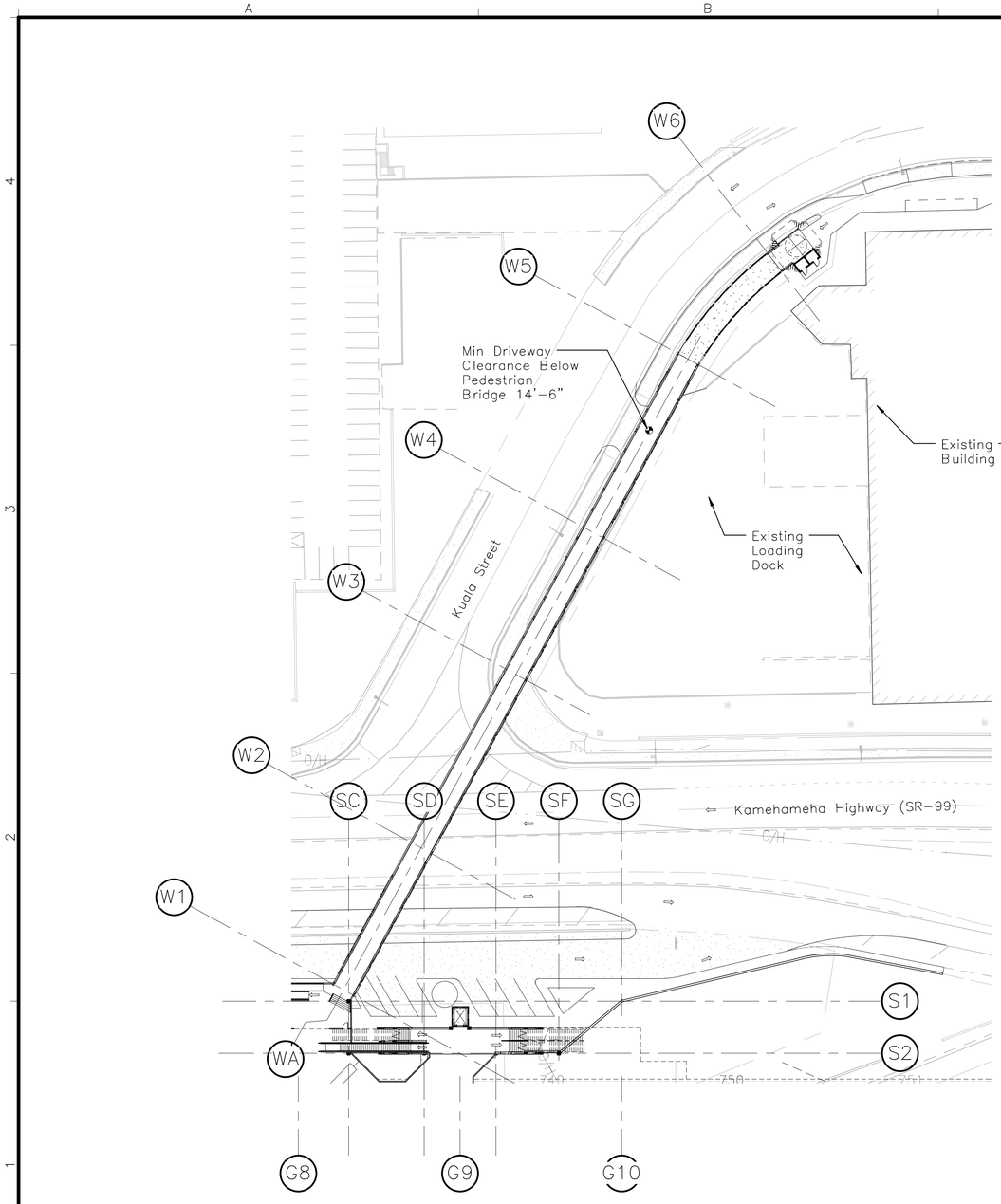
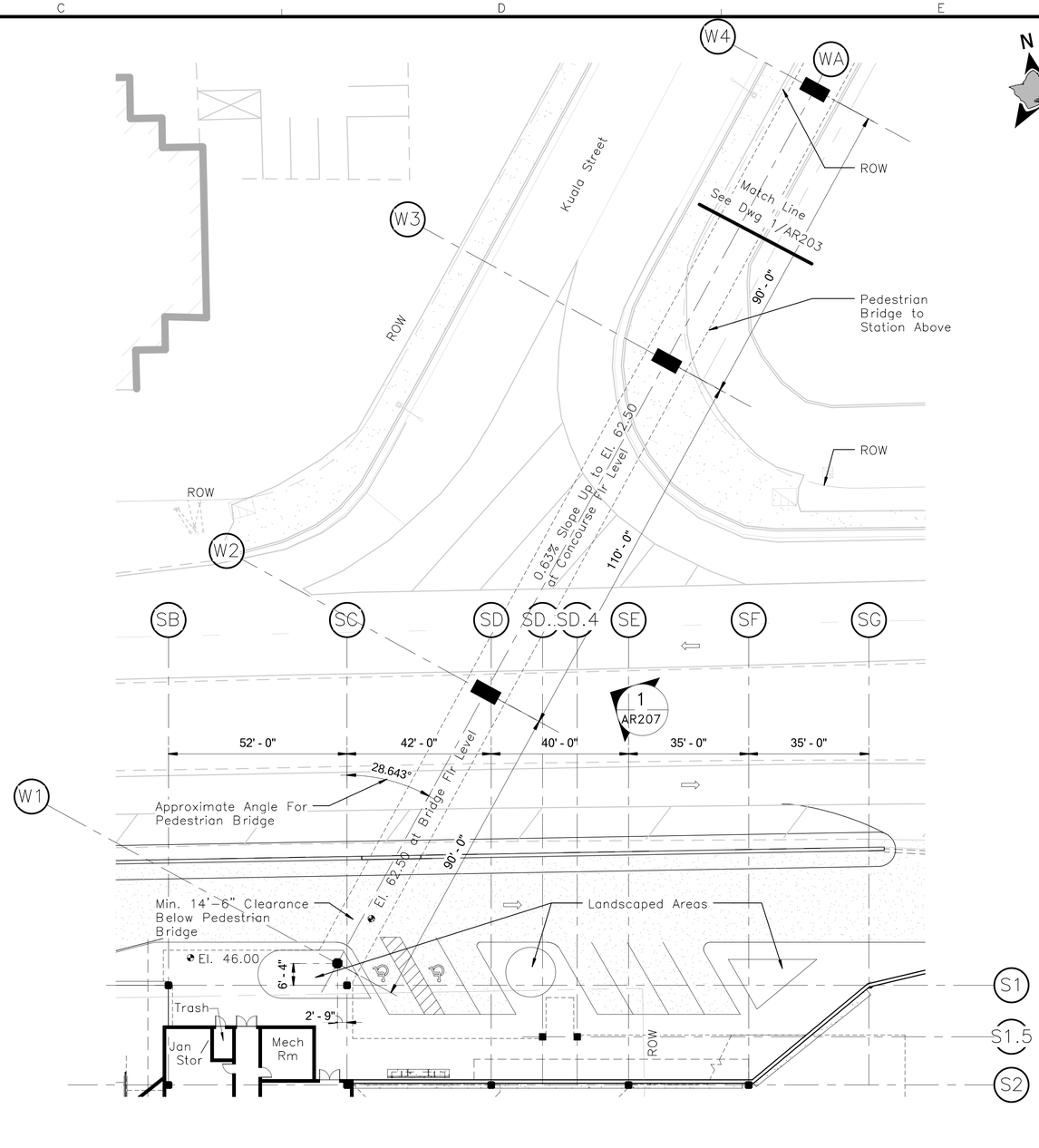


PEDESTRIAN BRIDGE – OVERALL PLAN (2 / AR201)

1" = 40'-0"

40' 0' 40'



PEDESTRIAN BRIDGE GROUND LEVEL PLAN (PART A) (1 / AR201, AR003)

1" = 20'-0"

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

NORTH ENTRANCE
PEDESTRIAN BRIDGE PLANS
OVERALL & GROUND LEVEL PLANS

Contract No.: SV-245
CADD File: SC4B-H03-AR201
Drawing No.: AR201 Rev:
Scale: As Noted
Page No. 122 of 180

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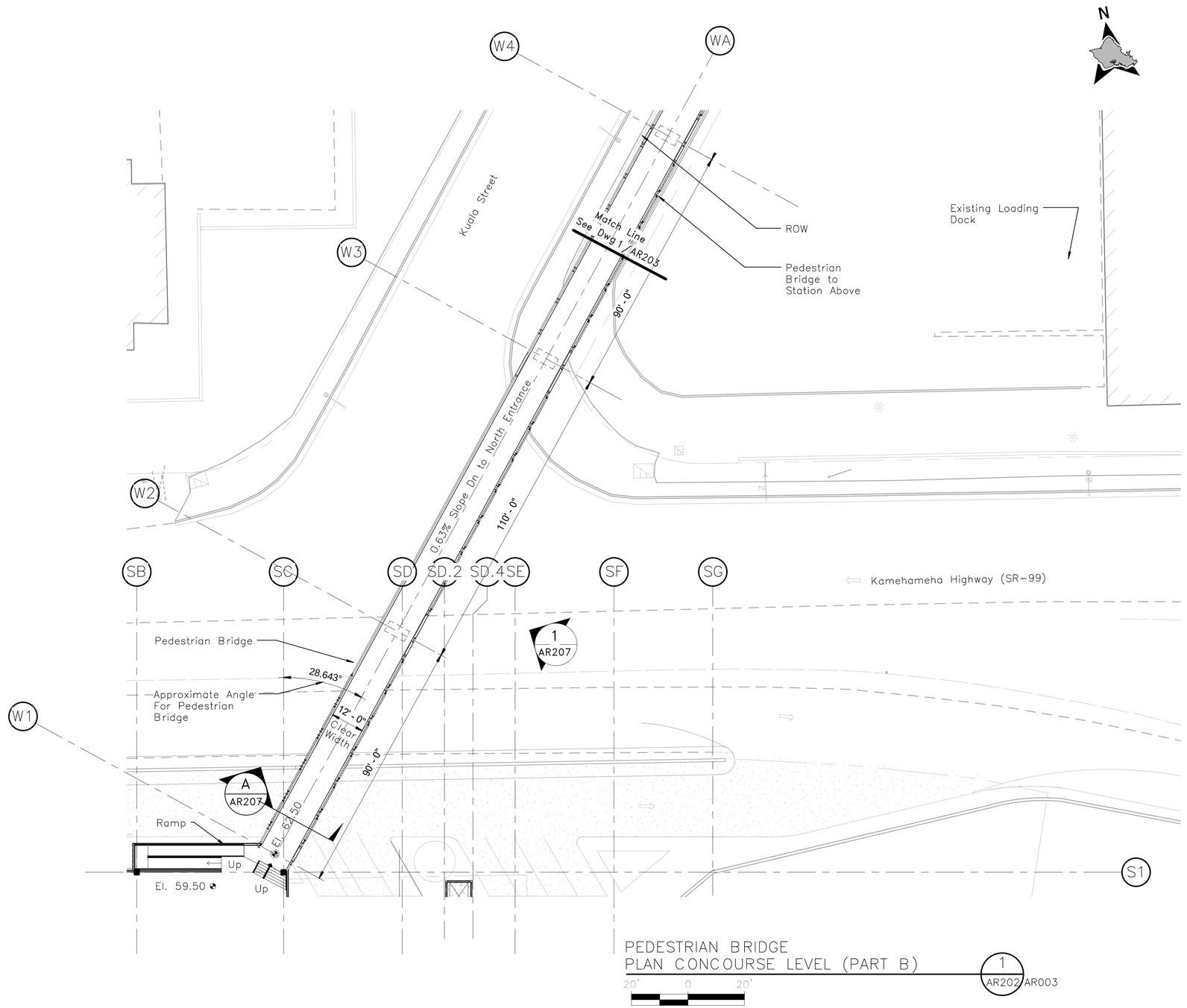

PEDESTRIAN BRIDGE
PLAN CONCOURSE LEVEL (PART B)

1 AR202 AR003

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

NORTH ENTRANCE CONCOURSE LEVEL PLAN

Contract No.: SV-245
CADD File: SC4B-H03-AR202
Drawing No.: AR202 Rev:
Scale: 1" = 20'-0"
Page No.: 123 of 180

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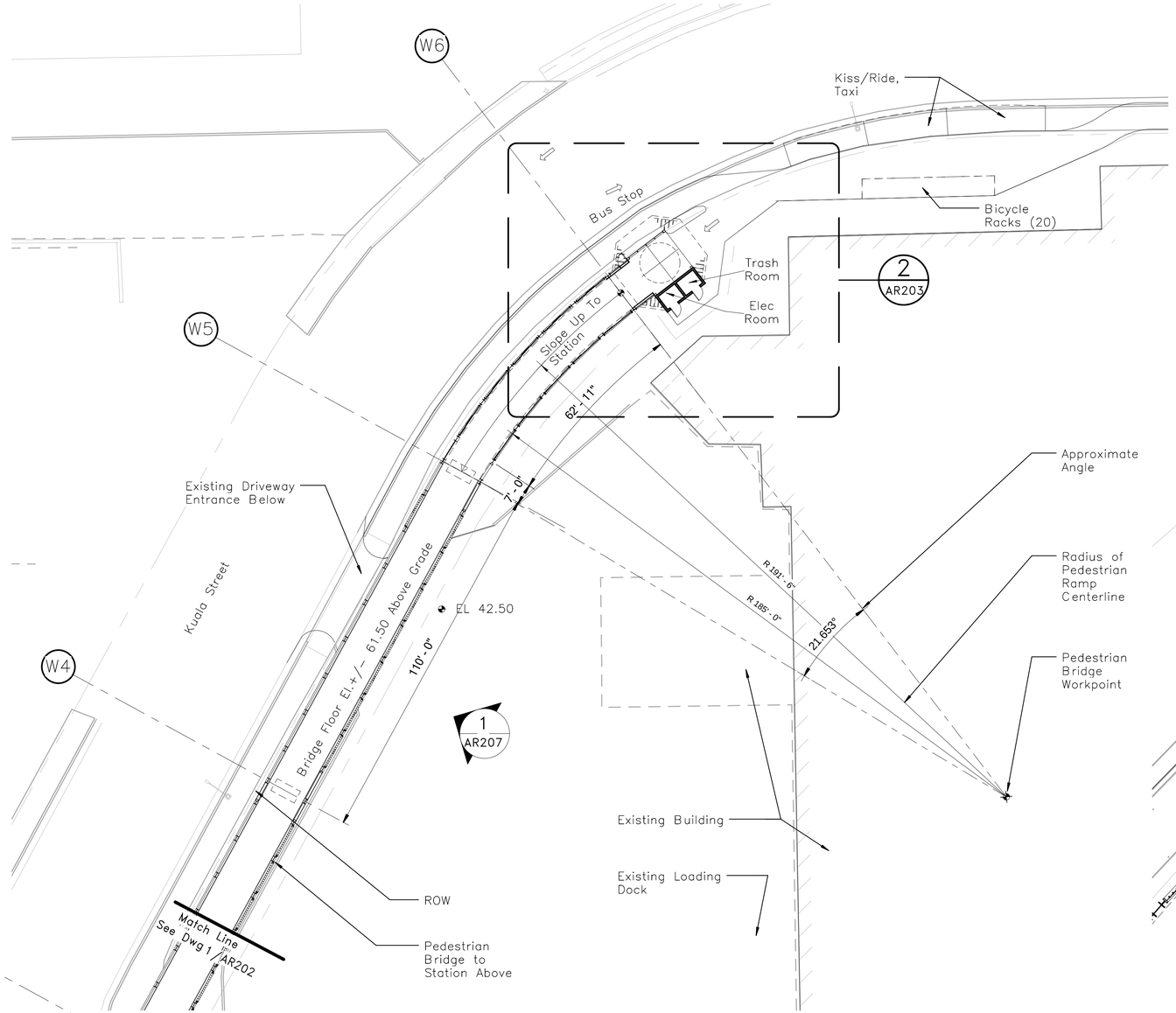
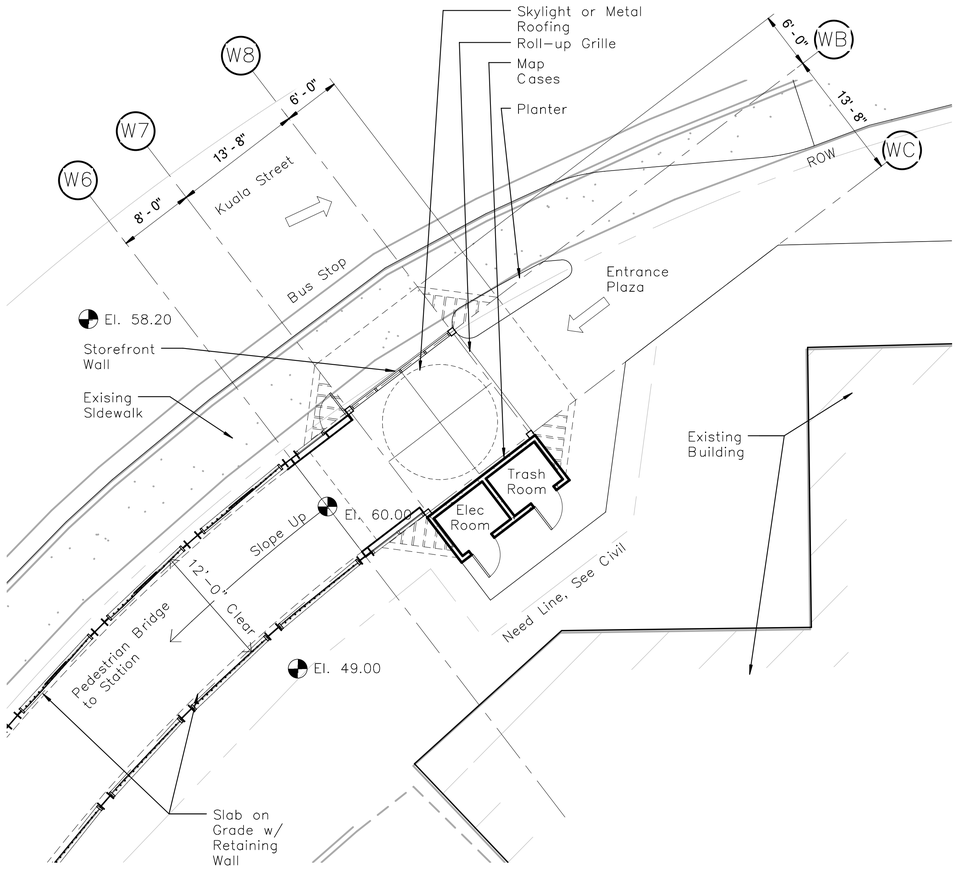


NORTH ENTRANCE/
PEDESTRIAN BRIDGE PLAN (PART B)
1" = 20'-0"
1 AR203 AR003

20' 0 20'



ENLARGED PLAN
NORTH ENTRANCE
1/8" = 1'-0"
2 AR203

2' 0'2' 4 6' 10' 14'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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Subconsultant:

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PEARL HIGHLANDS STATION

NORTH ENTRANCE
GROUND LEVEL PLAN

Contract No.: SV-245
CADD File: SC4B-H03-AR203
Drawing No.: AR203 Rev:
Scale: As Noted
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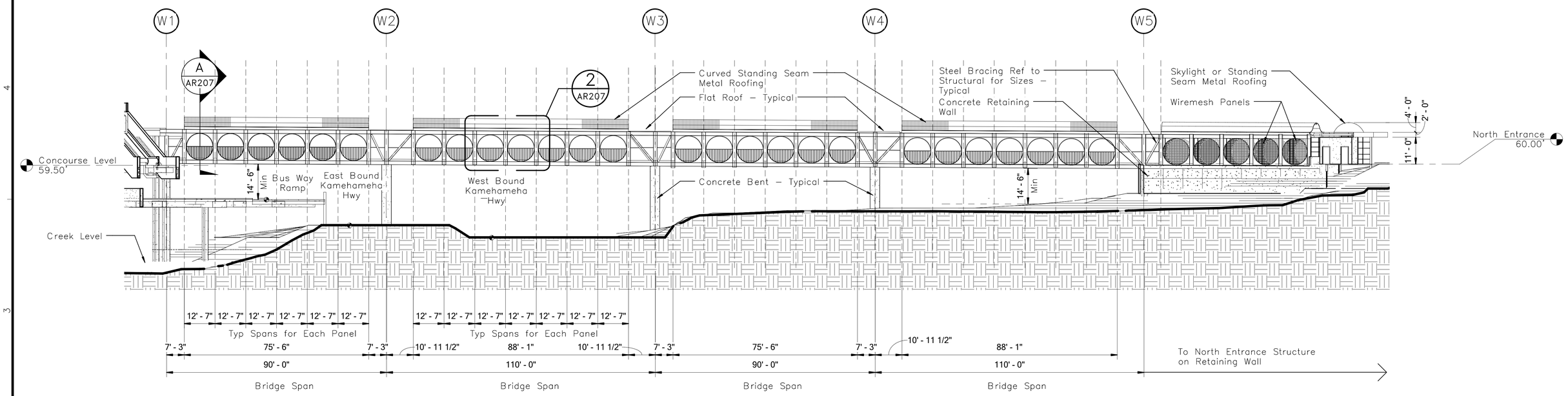
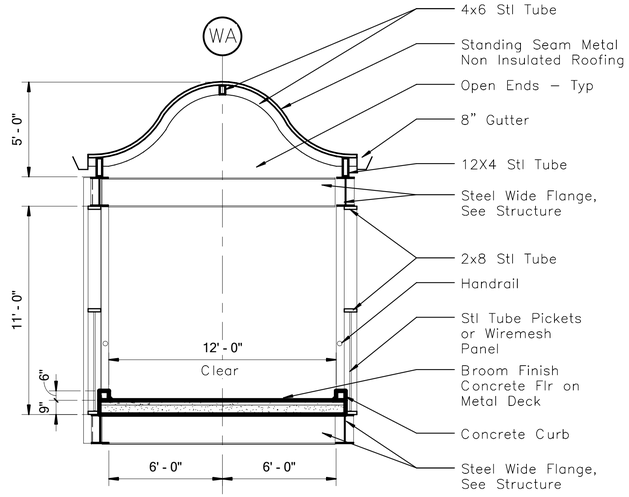


PEDESTRIAN BRIDGE–
EAST ELEVATION
1" = 20'–0"
1 AR207
AR102, AR201, AR202, AR203

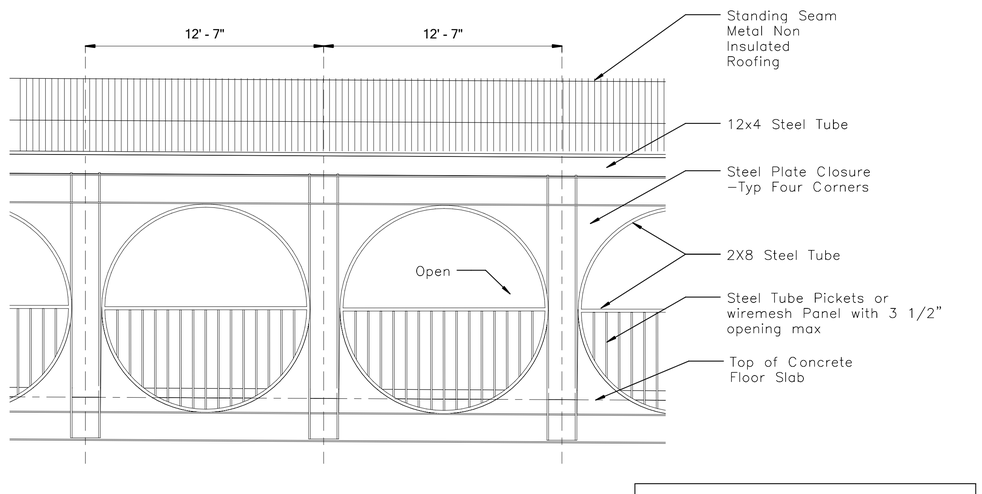
20' 0 20'



CROSS SECTION THRU
NORTH ENTRANCE PED BRIDGE
1/4" = 1'–0"
A AR207 AR103, AR202

1' 0' 2' 4' 8'

Verify all vertical elevations clearances with Civil.



ENLARGED TYPICAL PANEL ELEVATION
1/4" = 1'–0"
2 AR207 AR207

NOTE:
All structural WF members of the bridge facing street sides shall be of same size refer to structural drawings.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Checked: D K Carty
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

NORTH ENTRANCE ELEVATIONS & SECTION

Contract No.: SV–245
CADD File: SC4B–H06–AR207
Drawing No.: AR207 Rev:
Scale: As Noted
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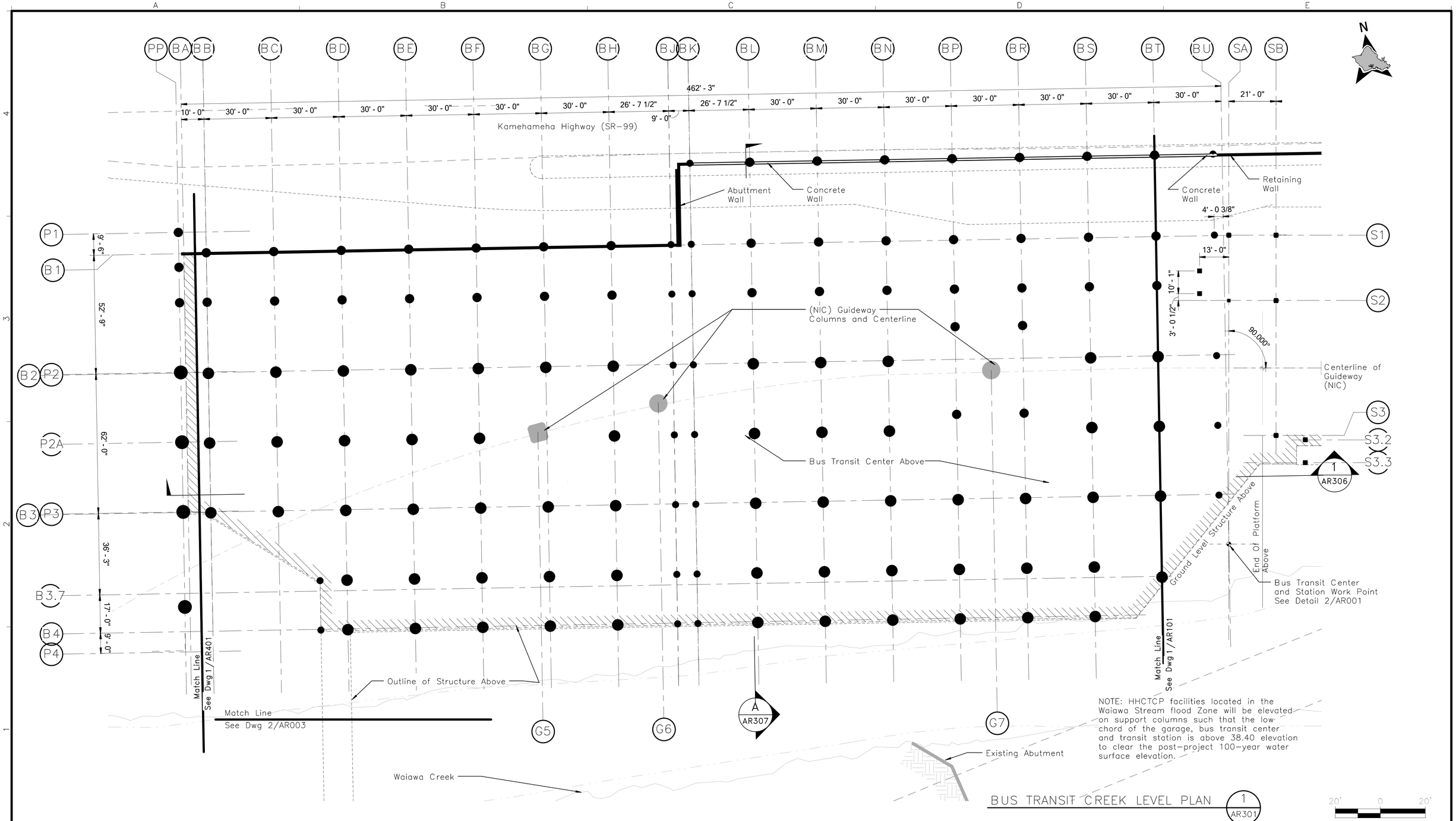

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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Subconsultant:

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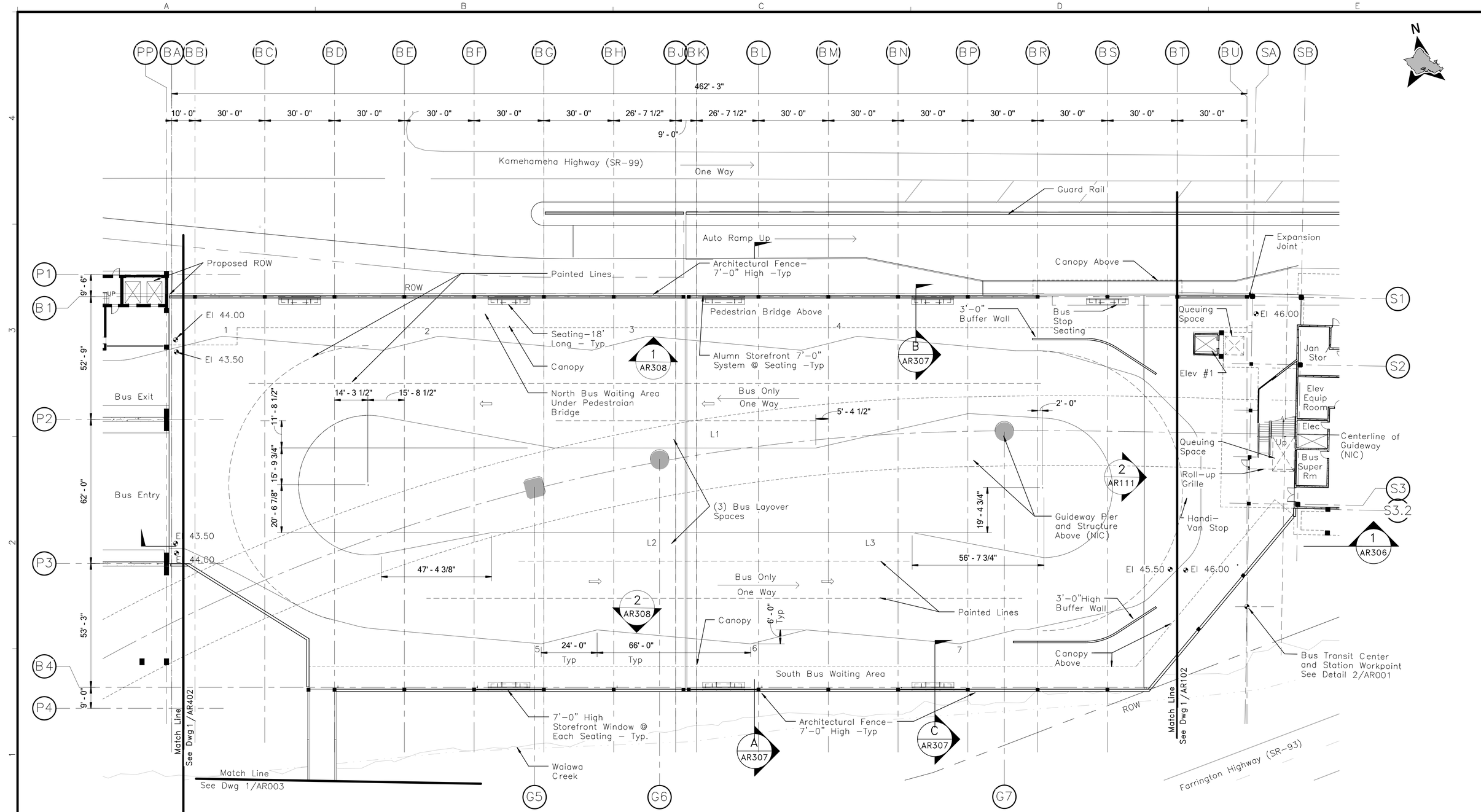
PEARL HIGHLANDS STATION

BUS TRANSIT CENTER CREEK LEVEL PLAN

Contract No.: SV-245
CADD File: SC4C-H03-AR301
Drawing No.: AR301 Rev:
Scale: 1" = 20'-0"
Page No.: 126 of 180



BUS TRANSIT CENTER
GROUND LEVEL PLAN

1 AR302 AR002

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Rev	By	Date	Description

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

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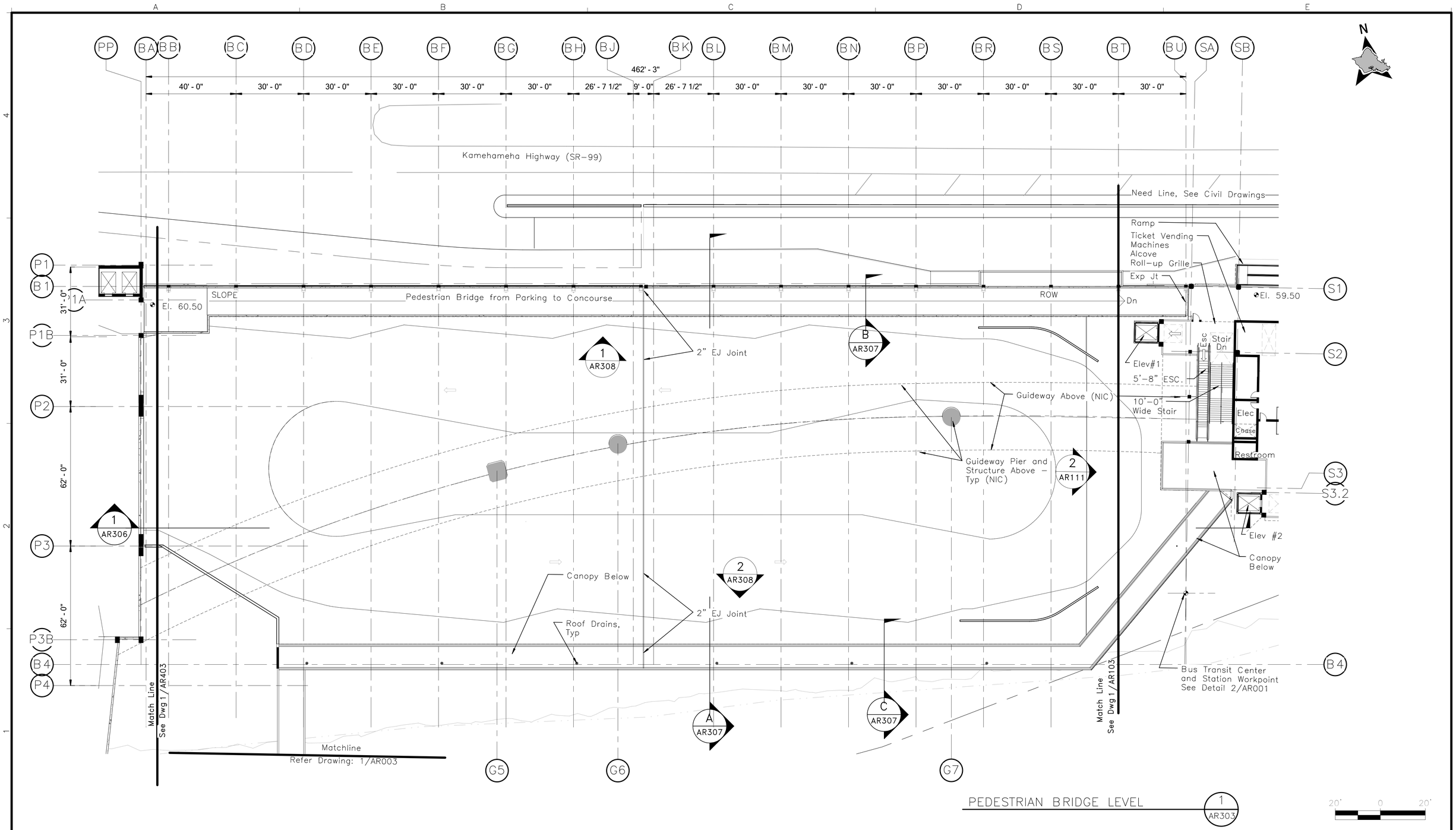
PEARL HIGHLANDS STATION

BUS TRANSIT CENTER GROUND LEVEL PLAN

Contract No.: SV-245
CADD File: SC4C-H03-AR302
Drawing No.: AR302 Rev:
Scale: 1" = 20'-0"
Page No.: 127 of 180



Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

BUS TRANSIT CENTER
PEDESTRIAN BRIDGE PLAN

Contract No.: SV-245
CADD File: SC4C-H03-AR303
Drawing No.: AR303 Rev:
Scale: 1" = 20'-0"
Page No.: 128 of 180

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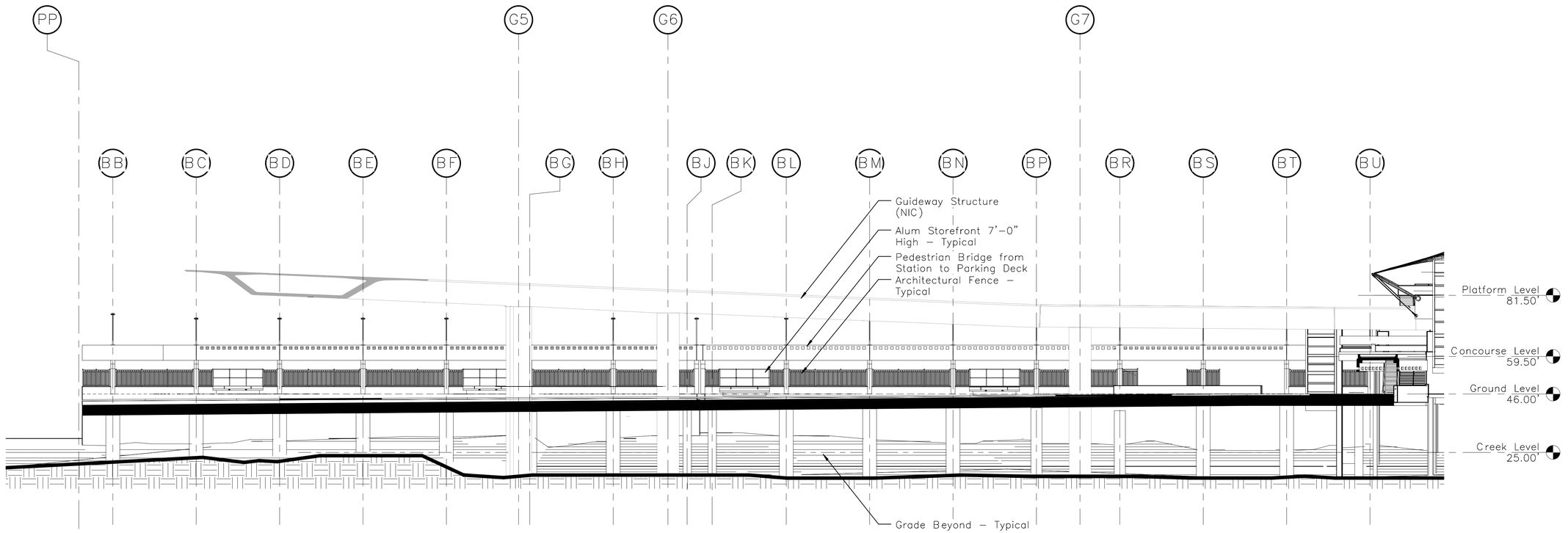

LONGITUDINAL SECTION — 1 / AR306 — AR103, AR301, AR302, AR303

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

BUS TRANSIT CENTER
LONGITUDINAL SECTION

Contract No.: SV-245
CADD File: SC4C-H05-AR306
Drawing No.: AR306 Rev:
Scale: 1" = 20'-0"
Page No.: 129 of 180

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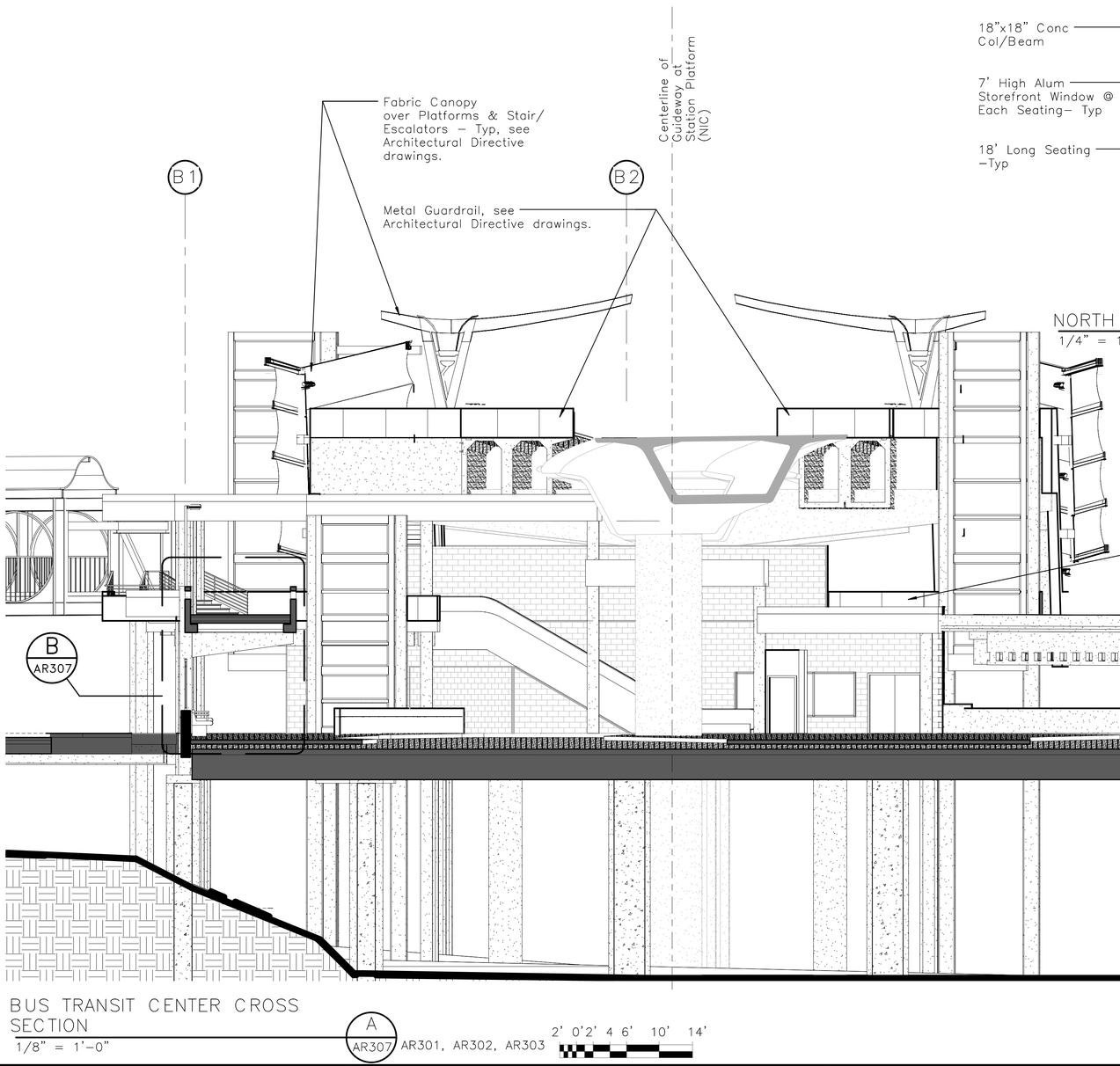
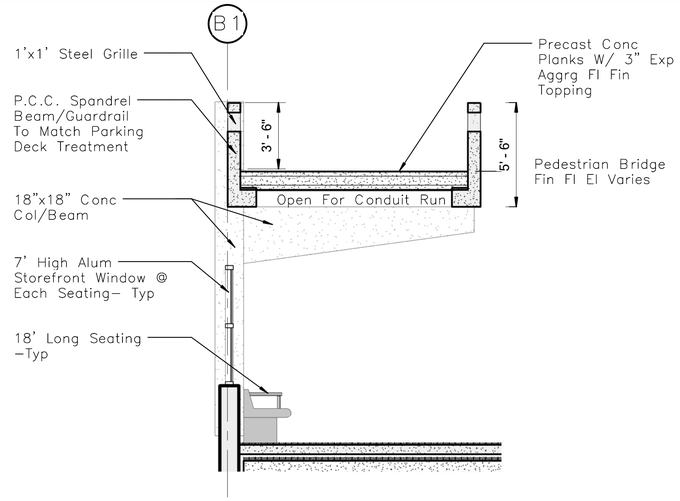
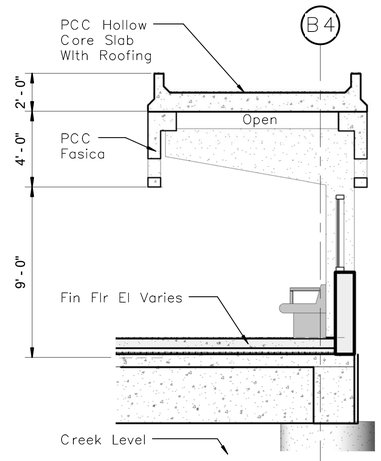


BUS TRANSIT CENTER CROSS SECTION
1/8" = 1'-0"
A AR307 AR301, AR302, AR303

2' 0' 2' 4 6' 10' 14'



NORTH BUS WAITING AREA SECTION B
1/4" = 1'-0"
B AR307 AR302 AR303 AR308



SOUTH BUS WAITING AREA SECTION C
1/4" = 1'-0"
C AR307 AR302 AR303 AR308

1' 0' 2' 4' 8'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

BUS TRANSIT CENTER CROSS SECTIONS

Contract No.: SV–245
CADD File: SC4C–H05–AR307
Drawing No.: AR307 Rev:
Scale: AS NOTED
Page No. 130 of 180

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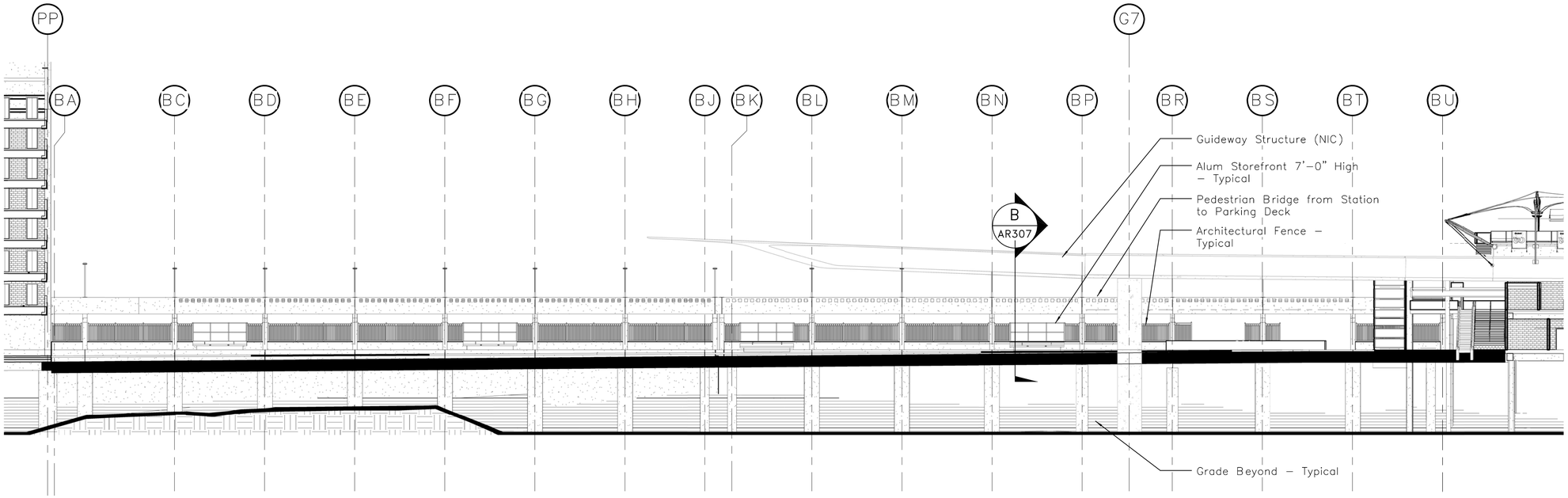
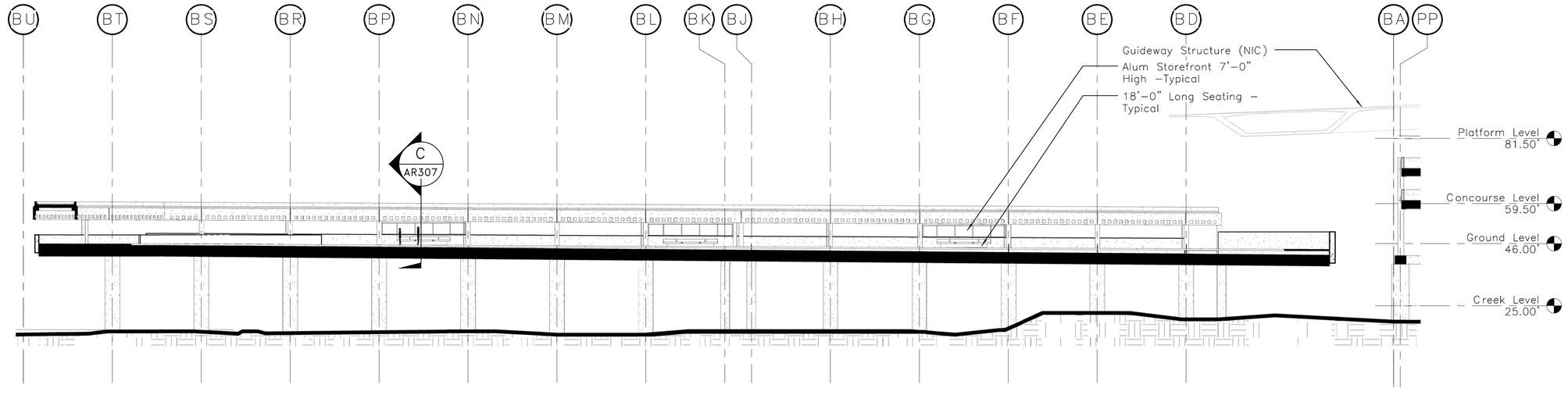


NORTH BUS BAY WAITING AREA / PEDESTRIAN BRIDGE

1 / AR308 AR302, AR303



SOUTH BUS BAY WAITING AREA

2 / AR308 AR302, AR303

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

BUS TRANSIT CENTER ELEVATIONS

Contract No.: SV–245
CADD File: SC4C–H06–AR308
Drawing No.: AR308 Rev:
Scale: 1" = 20'–0"
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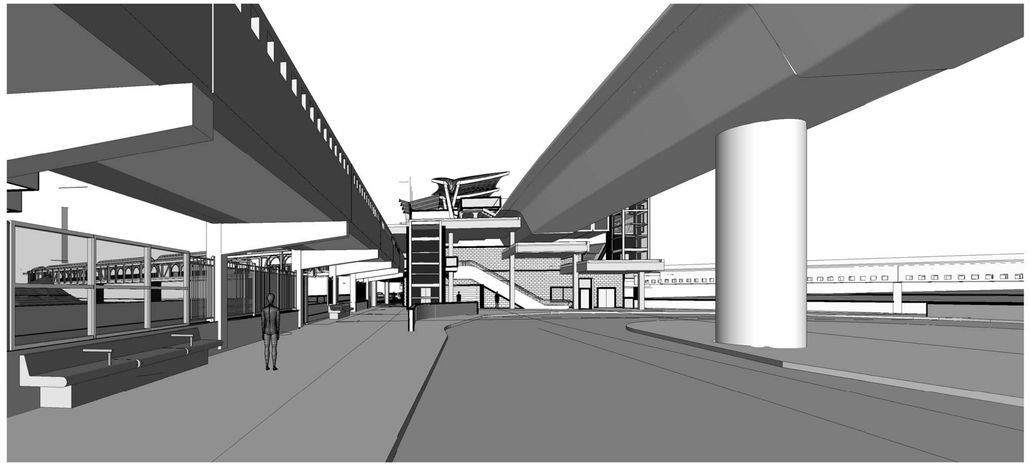
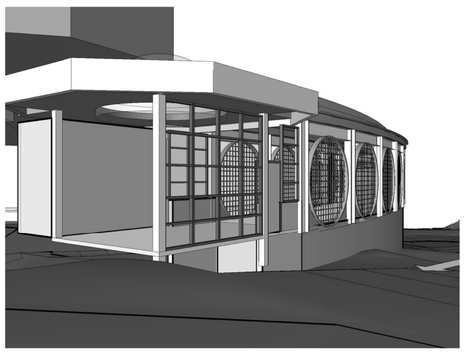
FROM SOUTH BUS WAITING to STATION — 1 / AR309

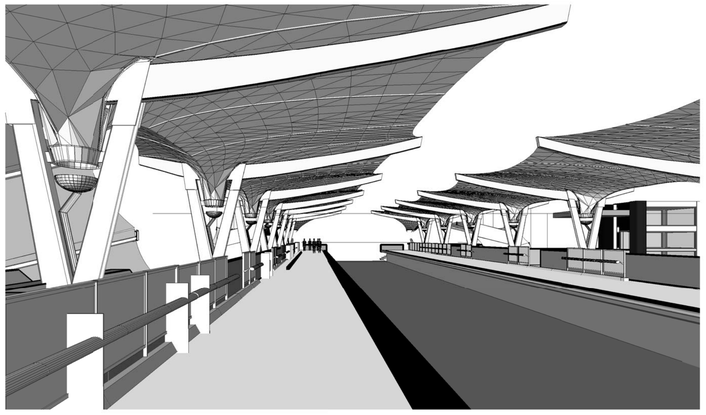


FROM NORTH BUS WAITING to STATION — 2 / AR309



NORTH ENTRANCE VIEW — 3 / AR309

PEDESTRIAN BRIDGE TO STATION — 4 / AR309



PLATFORM VIEW — 5 / AR309

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: M Cooper Jr
Checked: D K Carty
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

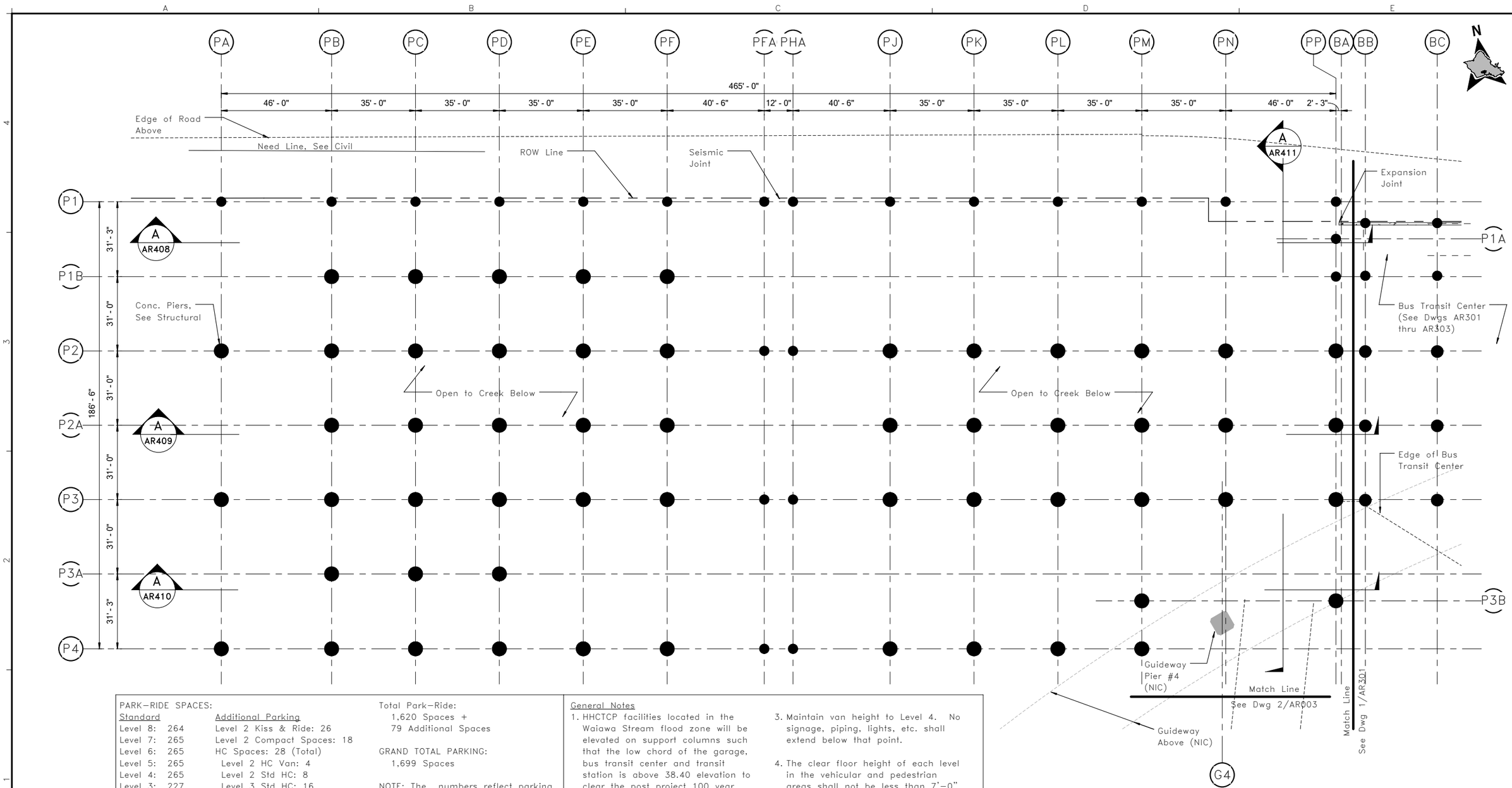
For reduced prints, original page size in inches: 0 1 2 3 4

PEARL HIGHLANDS STATION

BUS TRANSIT CENTER
3D VIEWS

Contract No.: SV-245
CADD File: SC4C-H07-AR309
Drawing No.: AR309 Rev:
Scale: NOT TO SCALE
Page No.: 132 of 180

9/11/2009 3:58:56 PM T:\16471A - HHCTC\16471A - Pearl Highlands\A&B\DWG\Pearl Highlands Local Files\MCJ\Pearl Highlands Station_MCJ.rvt



PARK–RIDE SPACES:

Standard		Additional Parking	
Level 8:	264	Level 2 Kiss & Ride:	26
Level 7:	265	Level 2 Compact Spaces:	18
Level 6:	265	HC Spaces: 28 (Total)	
Level 5:	265	Level 2 HC Van:	4
Level 4:	265	Level 2 Std HC:	8
Level 3:	227	Level 3 Std HC:	16
Level 2:	69	Level 1 Authorized Parking:	7
Level 1:	0		

Total Park–Ride:
1,620 Spaces +
79 Additional Spaces

GRAND TOTAL PARKING:
1,699 Spaces

NOTE: The numbers reflect parking spaces at levels indicated including parking spaces on the down ramp from referenced level.

General Notes

1. HHCTCP facilities located in the Waiawa Stream flood zone will be elevated on support columns such that the low chord of the garage, bus transit center and transit station is above 38.40 elevation to clear the post project 100 year water surface elevation.
2. Lights shall not be installed below the bottom of double tee structure.
3. Maintain van height to Level 4. No signage, piping, lights, etc. shall extend below that point.
4. The clear floor height of each level in the vehicular and pedestrian areas shall not be less than 7'–0" (IBC 406.2.2)

CREEK LEVEL PLAN — 1 / AR401

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

PEARL HIGHLANDS STATION

PARKING DECK
CREEK LEVEL

Contract No.: SV–245
CADD File: SC4D–H03–AR401
Drawing No.: AR401 Rev:
Scale: 1"=20'–0"
Page No.: 133 of 180

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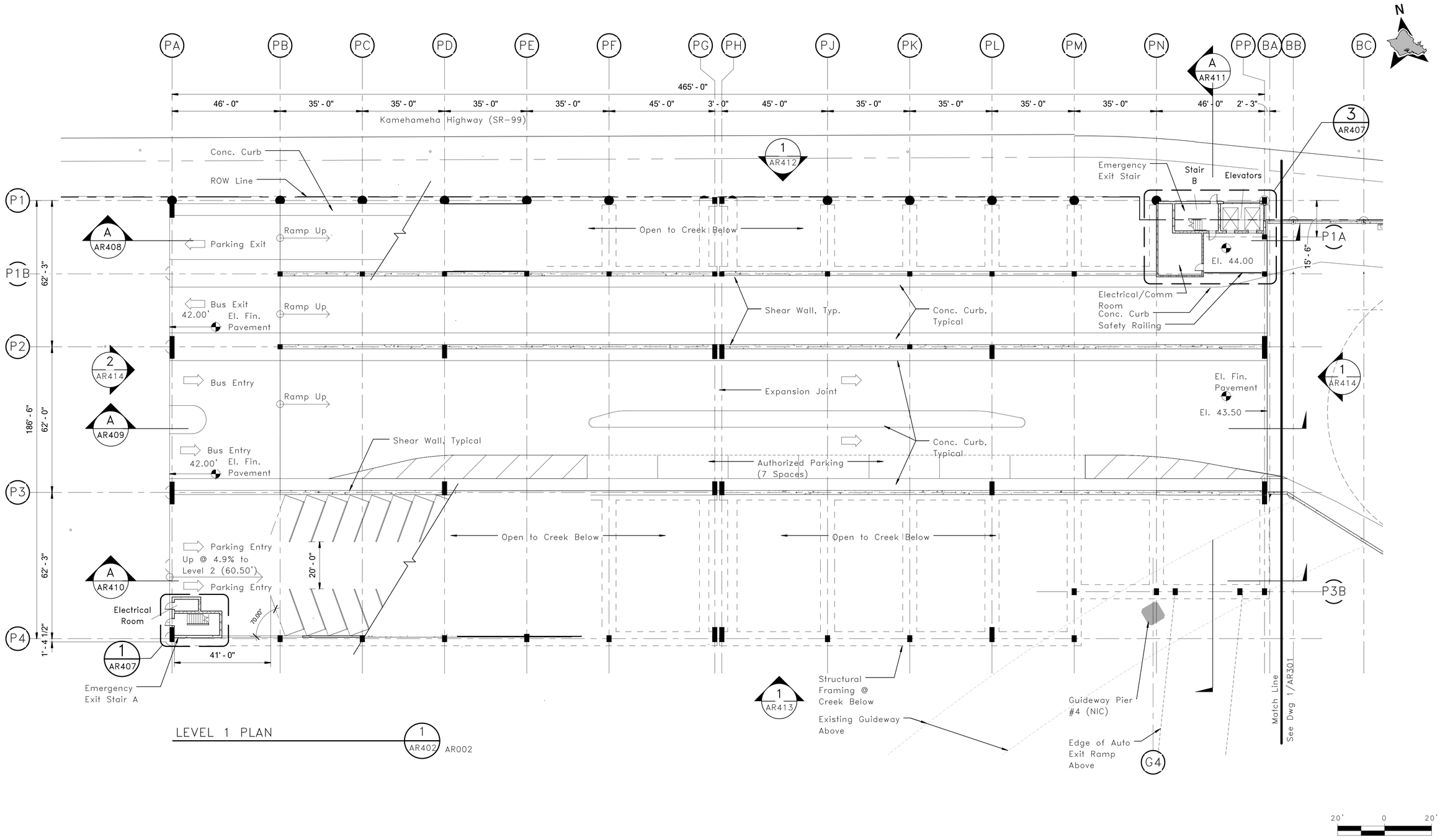

LEVEL 1 PLAN — 1 AR402 — AR002

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK LEVEL 1 PLAN

Contract No.: SV-245
CADD File: SC4D-H03-AR402
Drawing No.: AR402
Rev:
Scale: 1"=20'-0"
Page No.: 134 of 180

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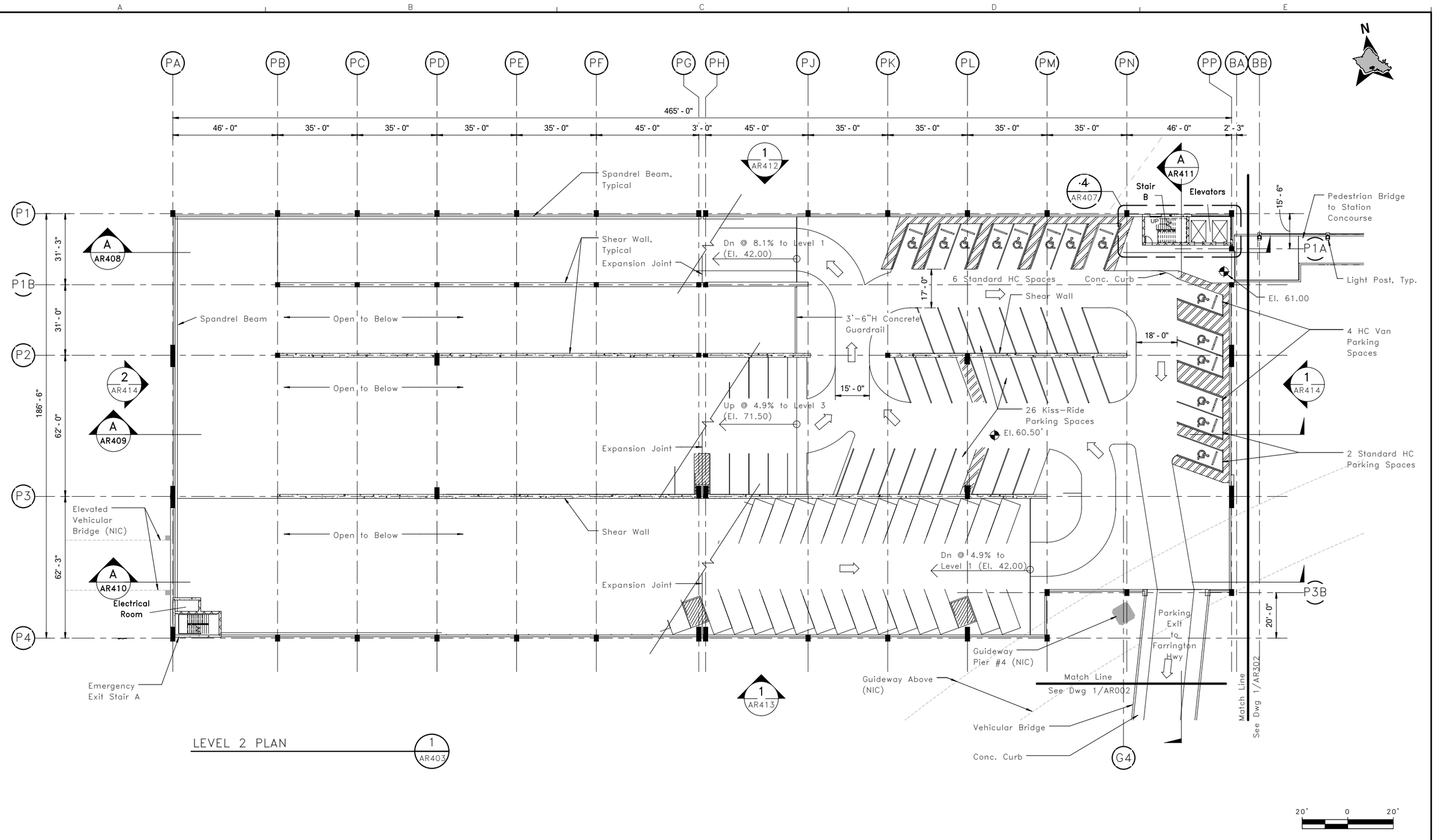

LEVEL 2 PLAN — 1 / AR403

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK
LEVEL 2 PLAN

Contract No.: SV-245
CADD File: SC4D-H03-AR403
Drawing No.: AR403 Rev:
Scale: 1"=20'-0"
Page No.: 135 of 180

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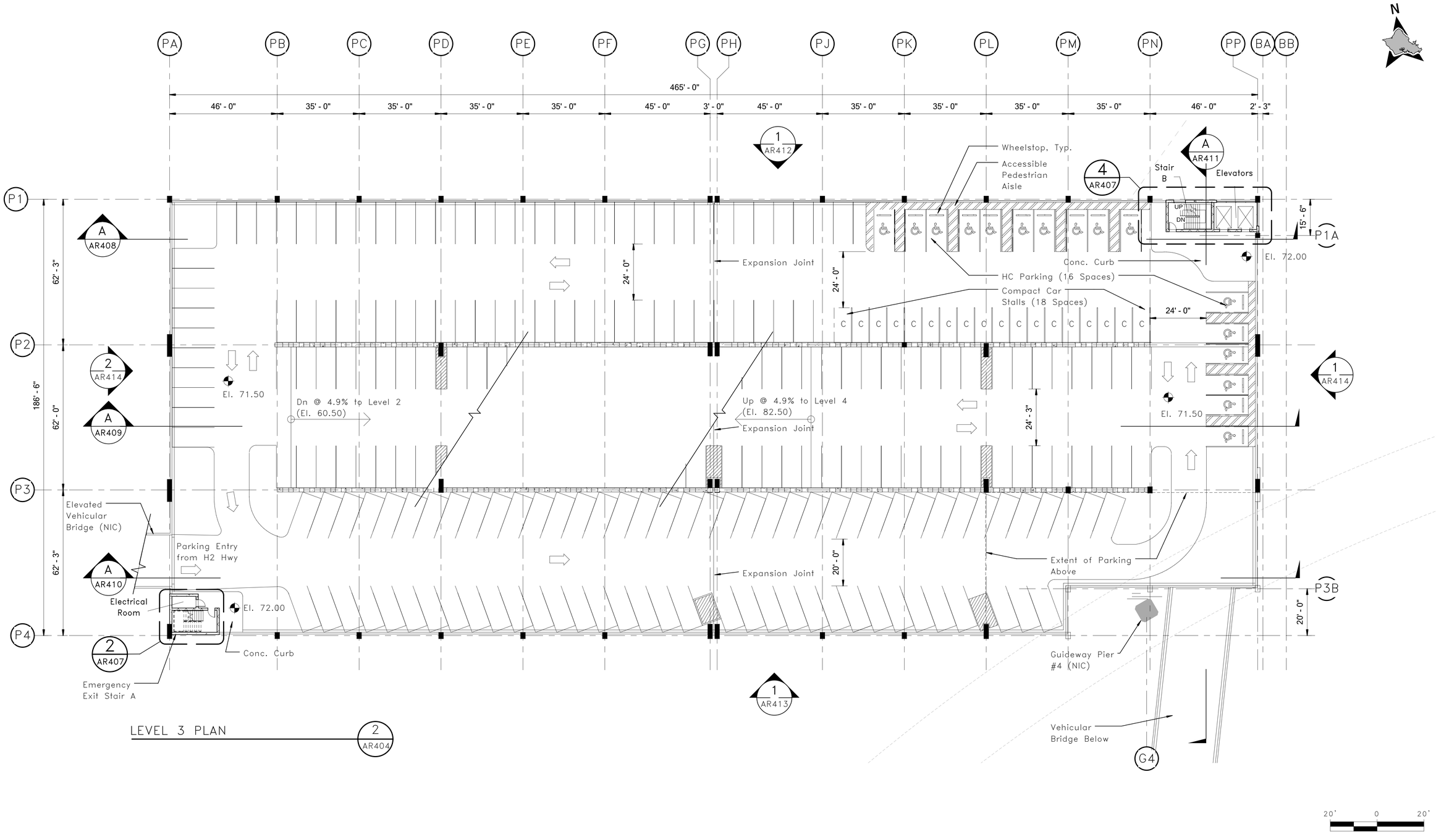

LEVEL 3 PLAN — 2 AR404

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK
LEVEL 3 PLAN

Contract No.: SV–245
CADD File: SC4D–H03–AR404
Drawing No.: AR404 Rev:
Scale: 1"=20'–0"
Page No.: 136 of 180

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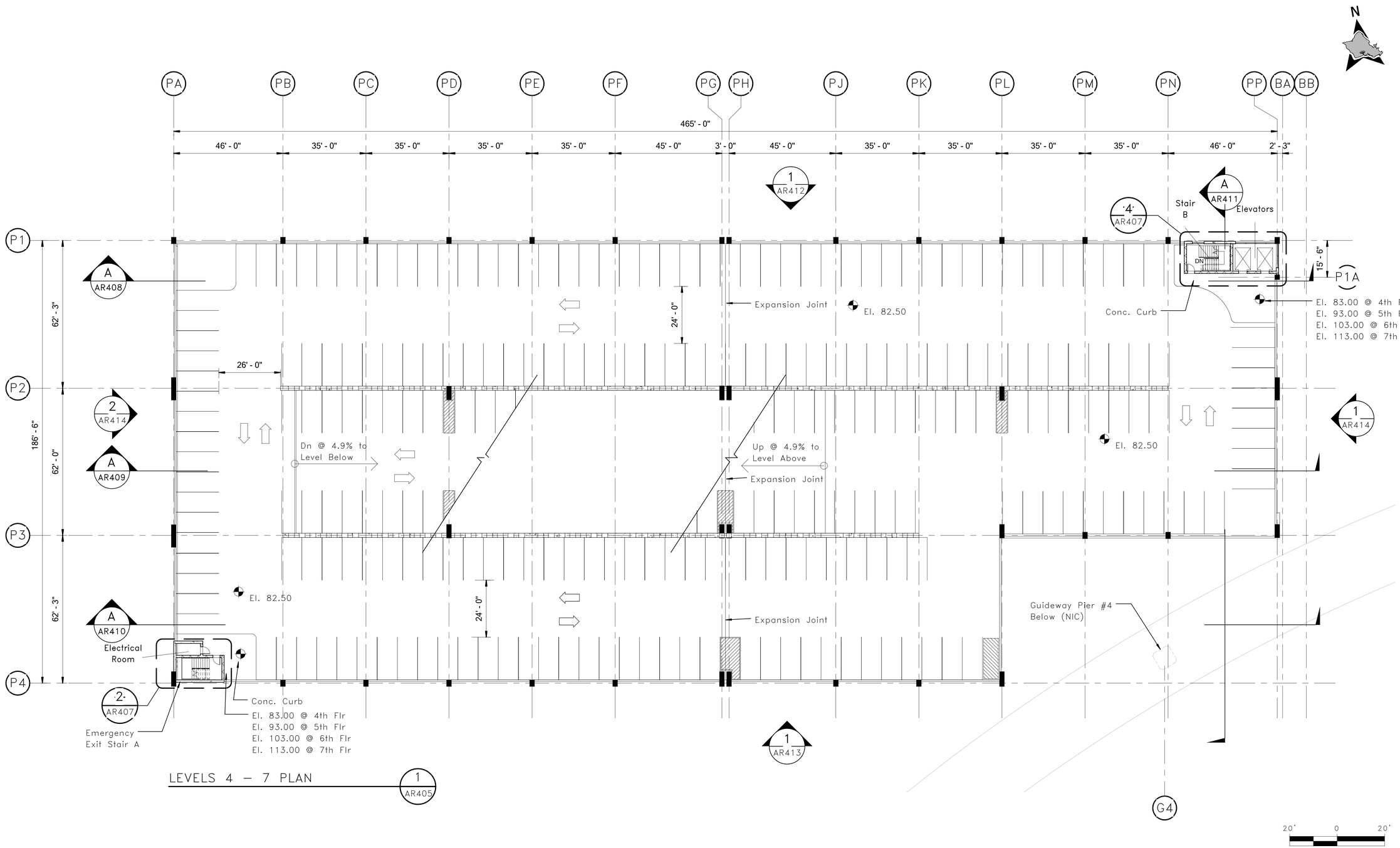

LEVELS 4 – 7 PLAN 1 AR405

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK
LEVELS 4 THRU 7 PLANS

Contract No.: SV–245
CADD File: SC4D–H03–AR405
Drawing No.: AR405 Rev:
Scale: 1"=20'–0"
Page No.: 137 of 180

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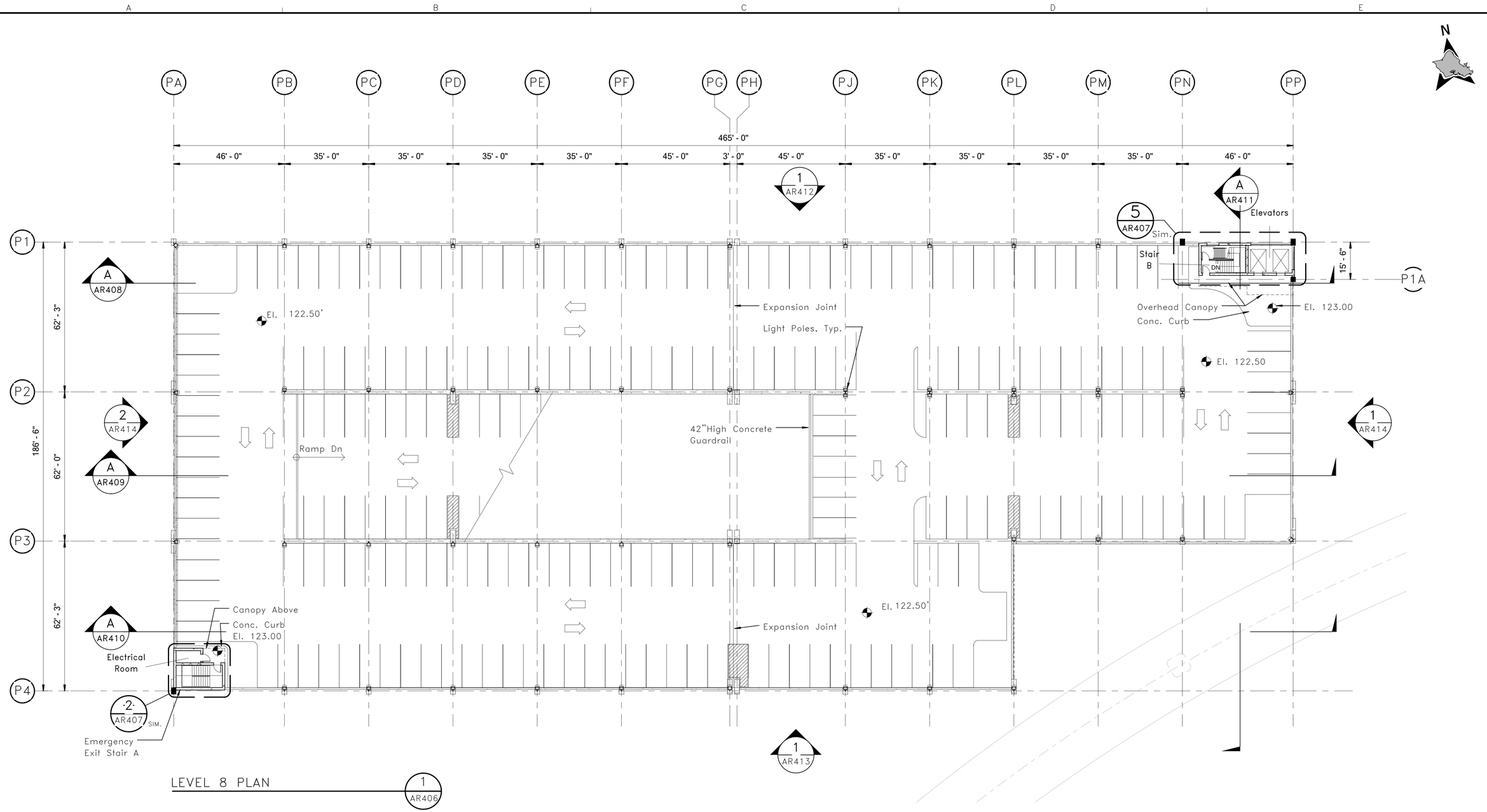

LEVEL 8 PLAN — 1 AR406

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK
LEVEL 8 PLAN

Contract No.: SV–245
CADD File: SC4D–H03–AR406
Drawing No.: AR406 Rev:
Scale: 1"=20'–0"
Page No.: 138 of 180

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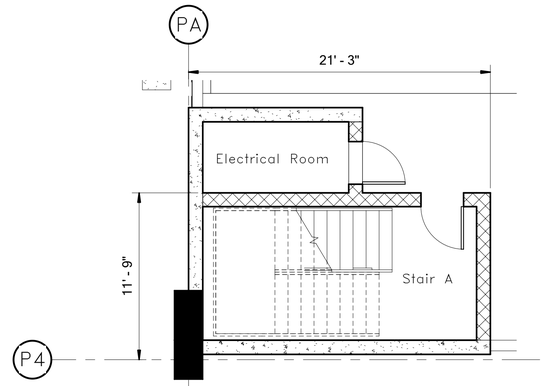
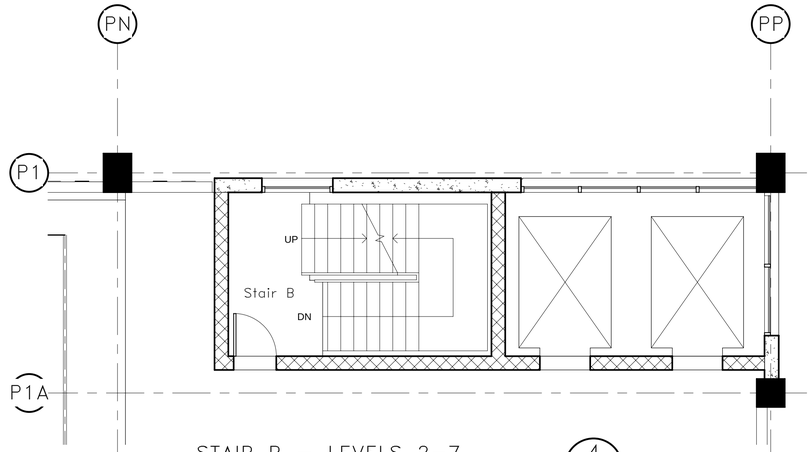


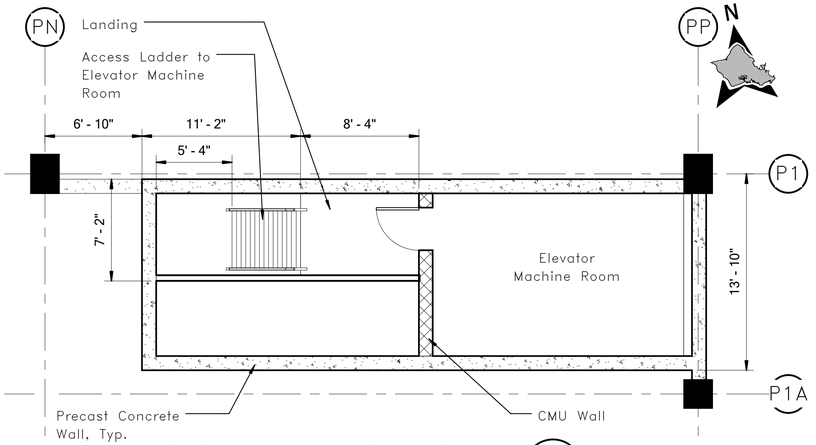
STAIR A – LEVELS 3–7 — 2 / AR407 — AR403, AR404, AR405, AR406

Note: Level 8 is similar.

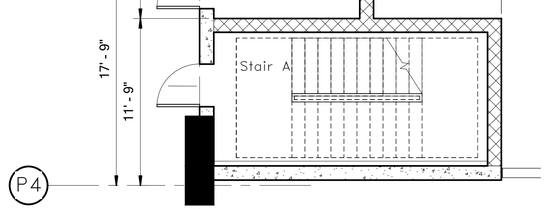


STAIR B – LEVELS 2–7 — 4 / AR407 — AR403, AR404, AR405

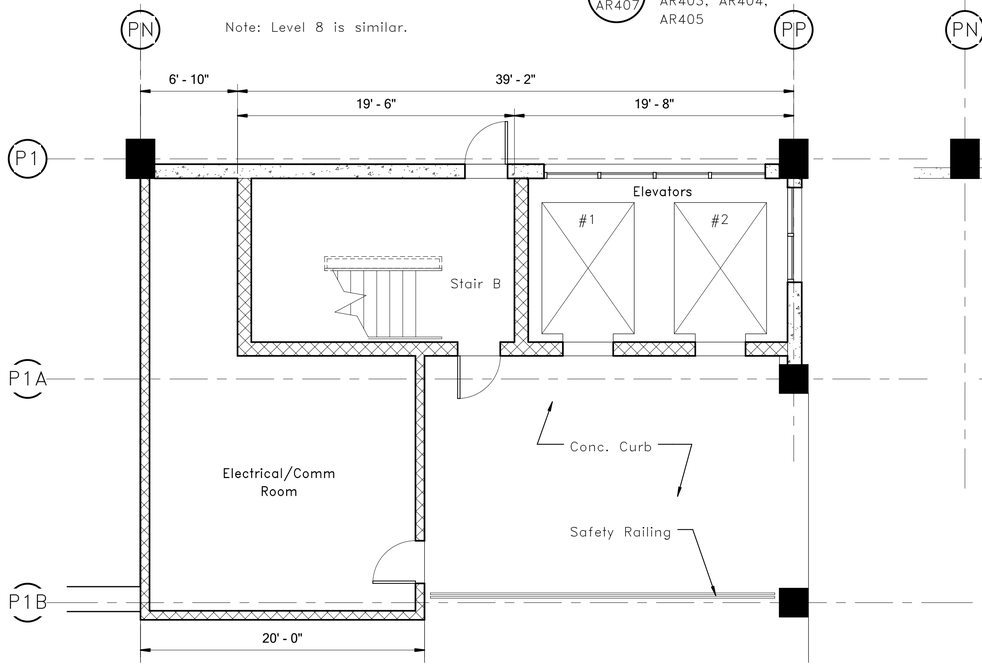
Note: Level 8 is similar.



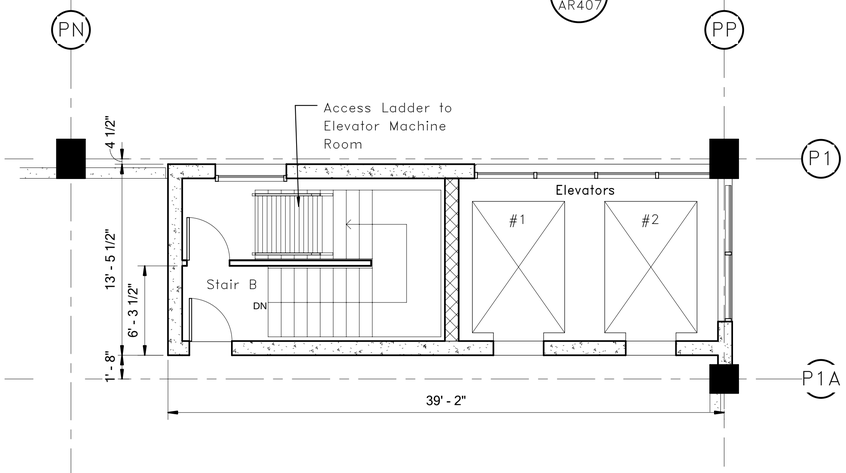
STAIR B–MACHINE ROOM PLAN — 6 / AR407



STAIR A – LEVEL 1 — 1 / AR407 — AR402



STAIR B – LEVEL 1 — 3 / AR407 — AR402



STAIR B – LEVEL 8 — 5 / AR407 — AR406

1' 0 2' 4' 6' 10'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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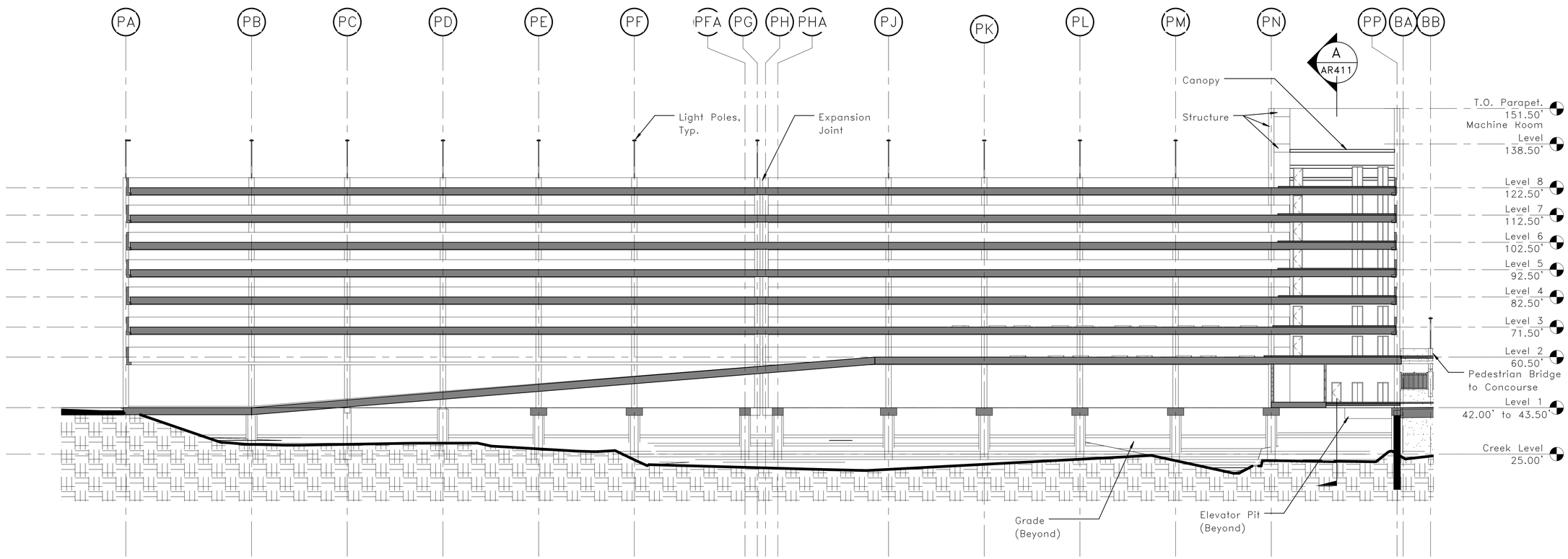
PEARL HIGHLANDS STATION

PARKING DECK
ENLARGED PLANS - ELEVATOR & STAIR

Contract No.: SV–245
CADD File: SC4D–H03–AR407
Drawing No.: AR407
Rev:
Scale: 3/16"=1'–0"
Page No.: 139 of 180



LONGITUDINAL SECTION (A / AR408)

AR401, AR402, AR403, AR404
AR405, AR406, AR411

20' 0 20'

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Rev	By	Date	Description

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB 100 YEARS PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK
LONGITUDINAL SECTION

SHEET 1 OF 3

Contract No.: SV-245
CADD File: SC4D-H05-AR408
Drawing No.: AR408 Rev:
Scale: 1"=20'-0"
Page No.: 140 of 180

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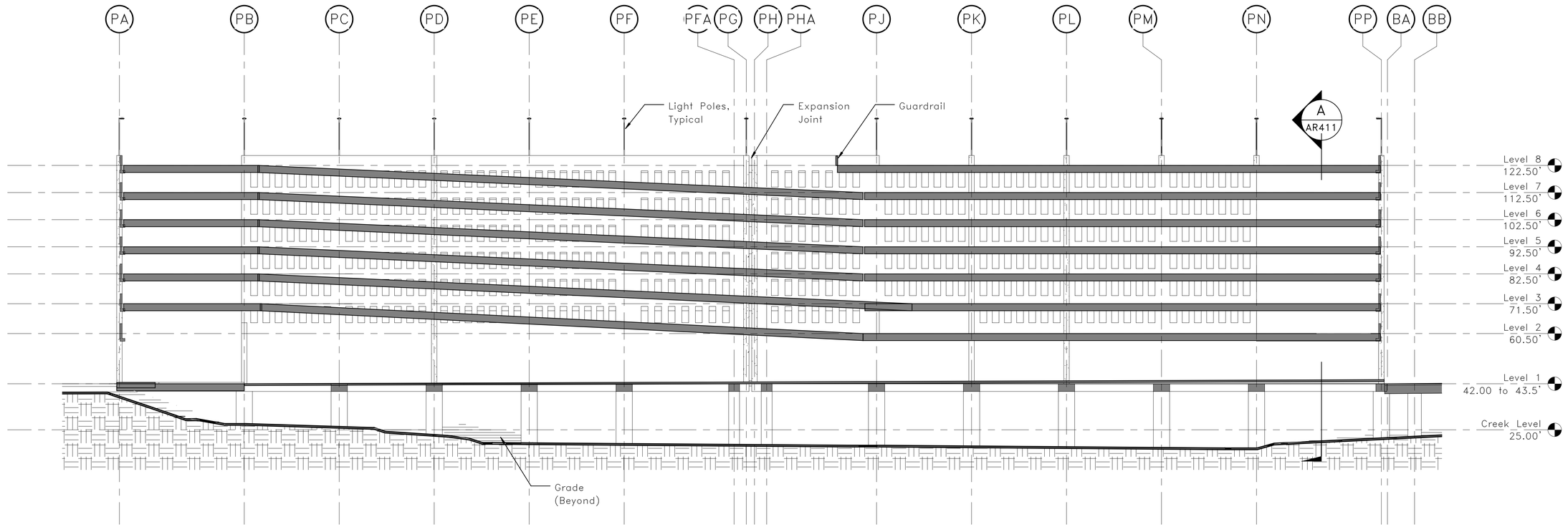

LONGITUDINAL SECTION. (A / AR409)

AR401, AR402, AR403, AR404
AR405, AR406, AR411

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK
LONGITUDINAL SECTION

SHEET 2 OF 3

Contract No.: SV-245
CADD File: SC4D-H05-AR409
Drawing No.: AR409 Rev:
Scale: 1"=20'-0"
Page No.: 141 of 180

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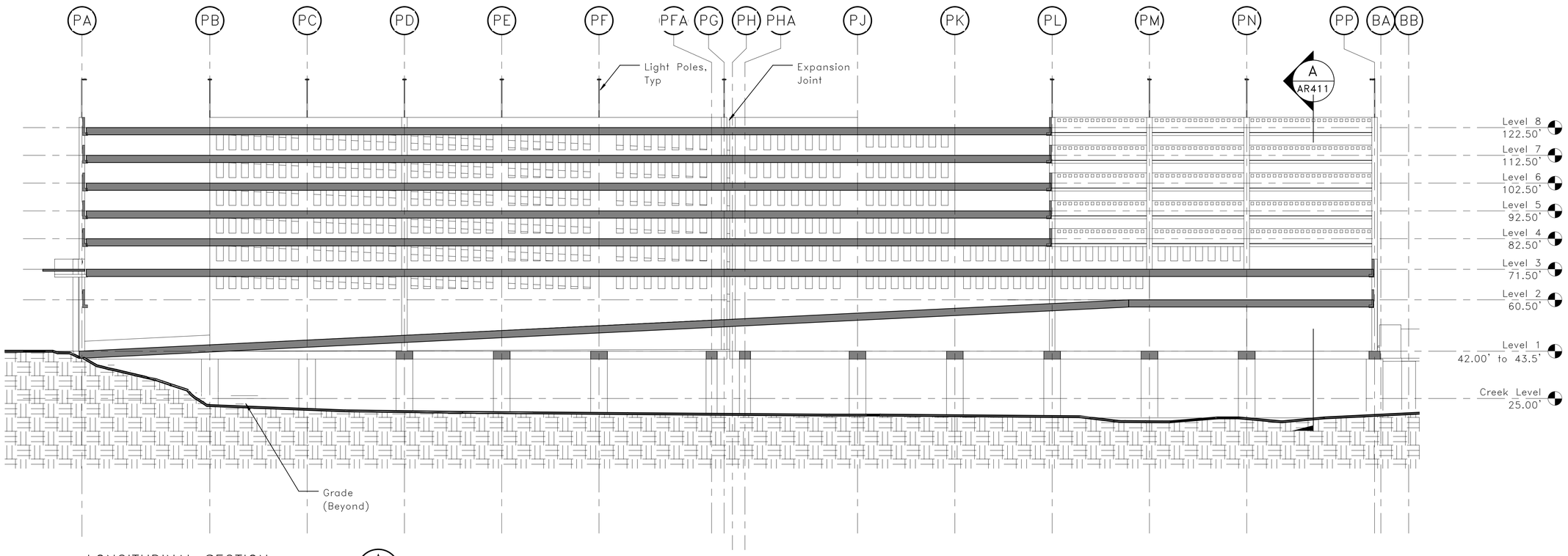

LONGITUDINAL SECTION . A / AR410

AR401, AR402, AR403, AR404
AR405, AR406, AR411

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK
LONGITUDINAL SECTION

SHEET 3 OF 3

Contract No.: SV-245
CADD File: SC4D-HO5-AR410
Drawing No: AR410 Rev:
Scale: 1"=20'-0"
Page No. 142 of 180

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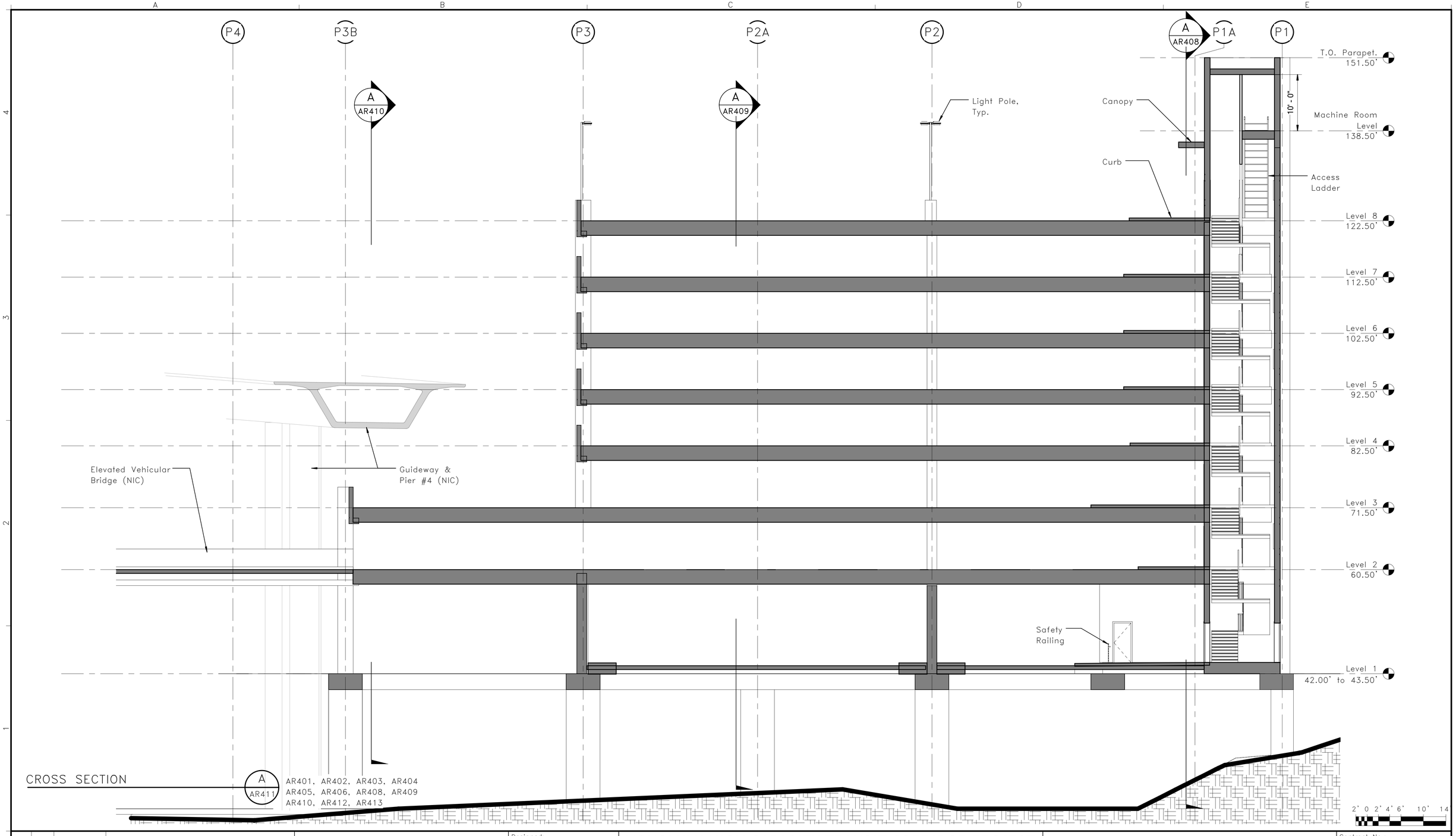

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK
CROSS SECTION

Contract No.: SV-245
CADD File: SC4D-H05-AR411
Drawing No.: AR411
Rev:
Scale: 1/16"=1'-0"
Page No.: 143 of 180

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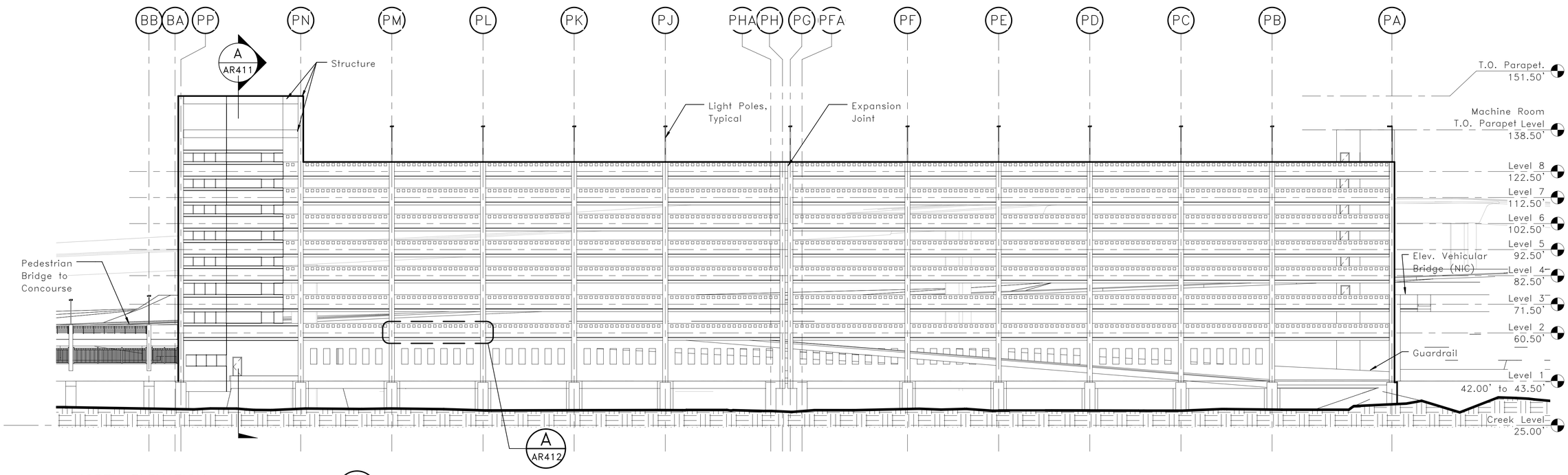


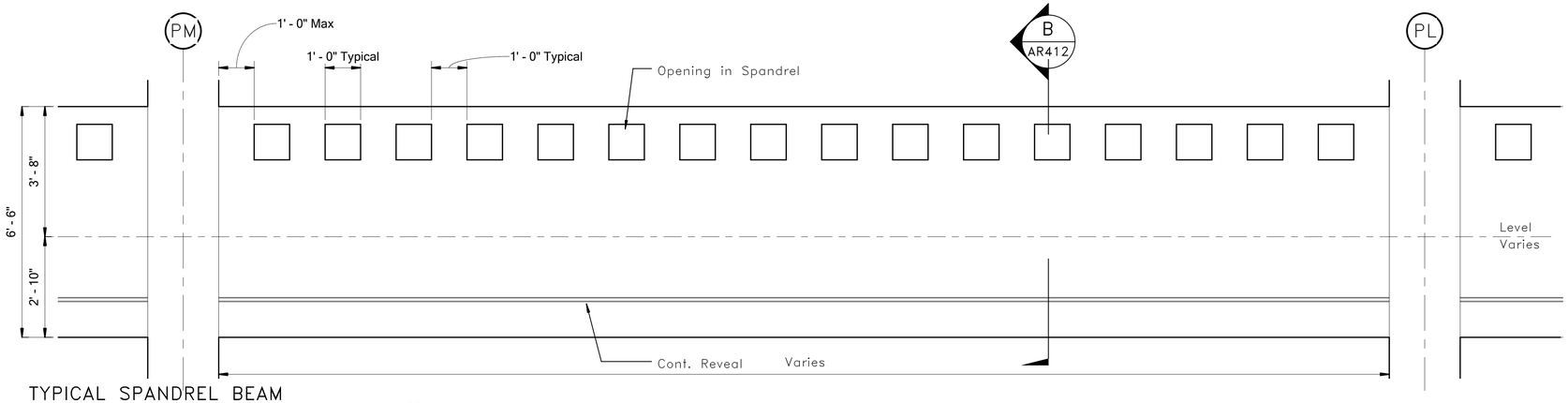
NORTH ELEVATION

1" = 20'-0"

20' 0 20'

1 / AR412

AR401, AR402, AR403
AR404, AR405, AR406

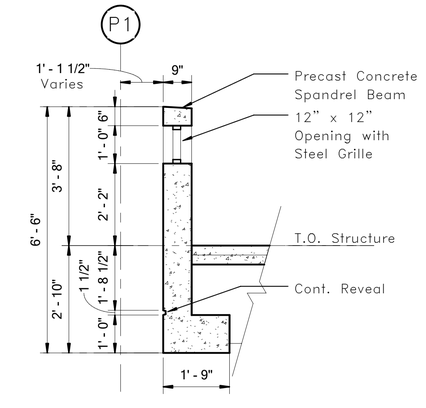


TYPICAL SPANDREL BEAM ELEVATION

1/2" = 1'-0"

1' 0 2' 4'

A / AR412 AR412



TYPICAL SPANDREL BEAM DETAIL

1/2" = 1'-0"

1' 0 2' 4'

B / AR412 AR412

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

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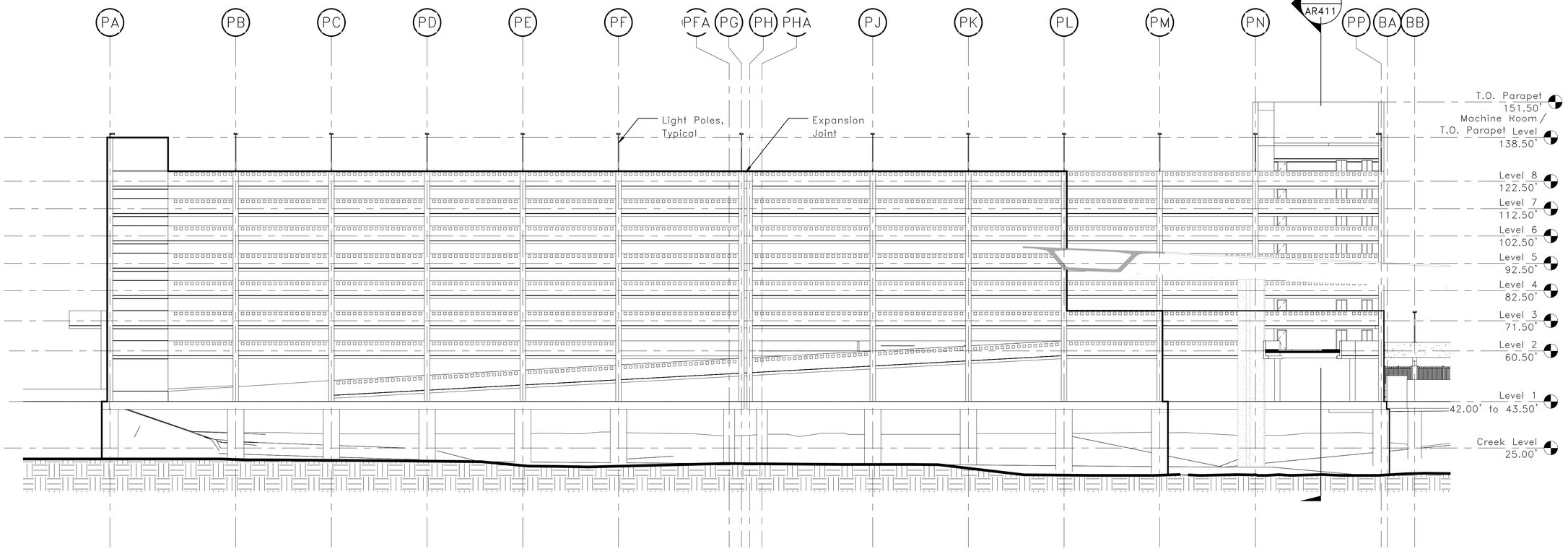
PEARL HIGHLANDS STATION

PARKING DECK
NORTH ELEVATION

Contract No.: SV-245
CADD File: SC4D-HO6-AR412
Drawing No.: AR412 Rev:
Scale: As Noted
Page No.: 144 of 180

9/11/2009 5:42:22 PM T:\16471A - HHCTC\16471A - Pearl Highlands\A&B\DWG\Pearl Highlands Local Files\SLM\Pearl Highlands-Parking Deck_SLM.rvt



SOUTH ELEVATION 1 / AR413

AR401, AR402, AR403
AR404, AR405, AR406

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK
SOUTH ELEVATION

Contract No.: SV-245
CADD File: SC4D-H06-AR413
Drawing No: AR413 Rev:
Scale: 1"=20'-0"
Page No. 145 of 180

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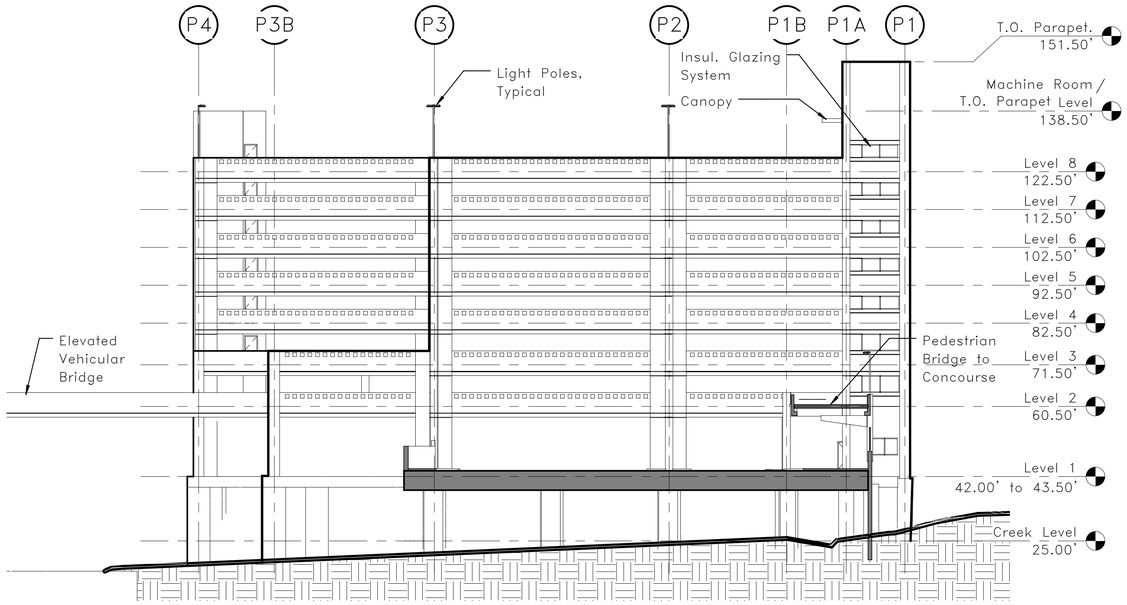
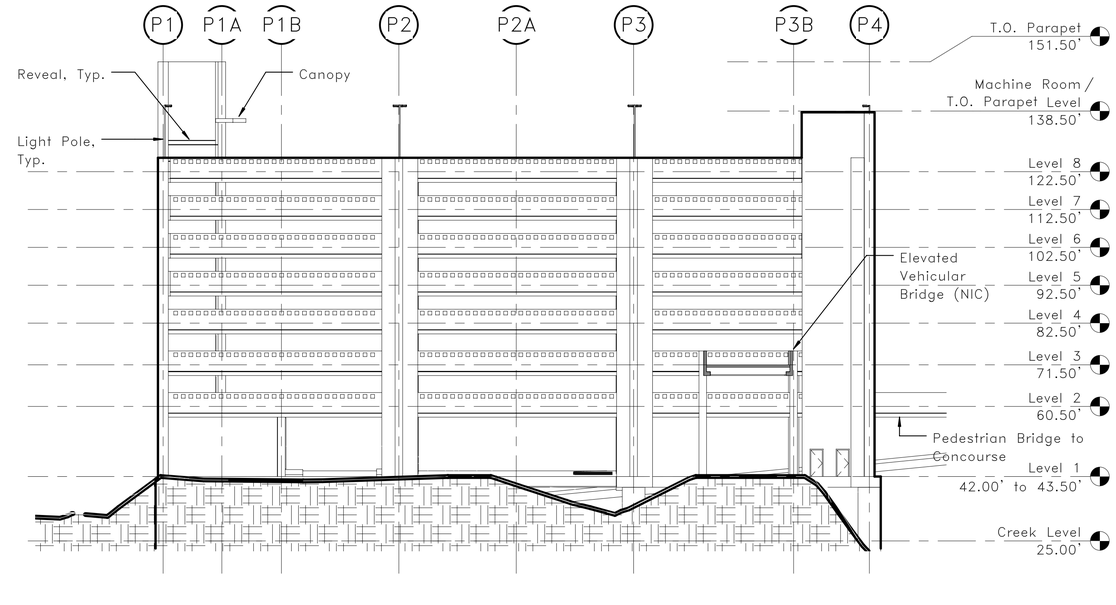


EAST ELEVATION — 1 / AR414

AR401, AR402, AR403
AR404, AR405, AR406



WEST ELEVATION — 2 / AR414

AR401, AR402, AR403
AR404, AR405, AR406

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
Drawn: S L Martin
Checked: A Onumah
Approved: K Parmar
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK
EAST & WEST ELEVATIONS

Contract No.: SV-245
CADD File: SC4D-HO6-AR414
Drawing No.: AR414 Rev:
Scale: 1"=20'-0"
Page No.: 146 of 180

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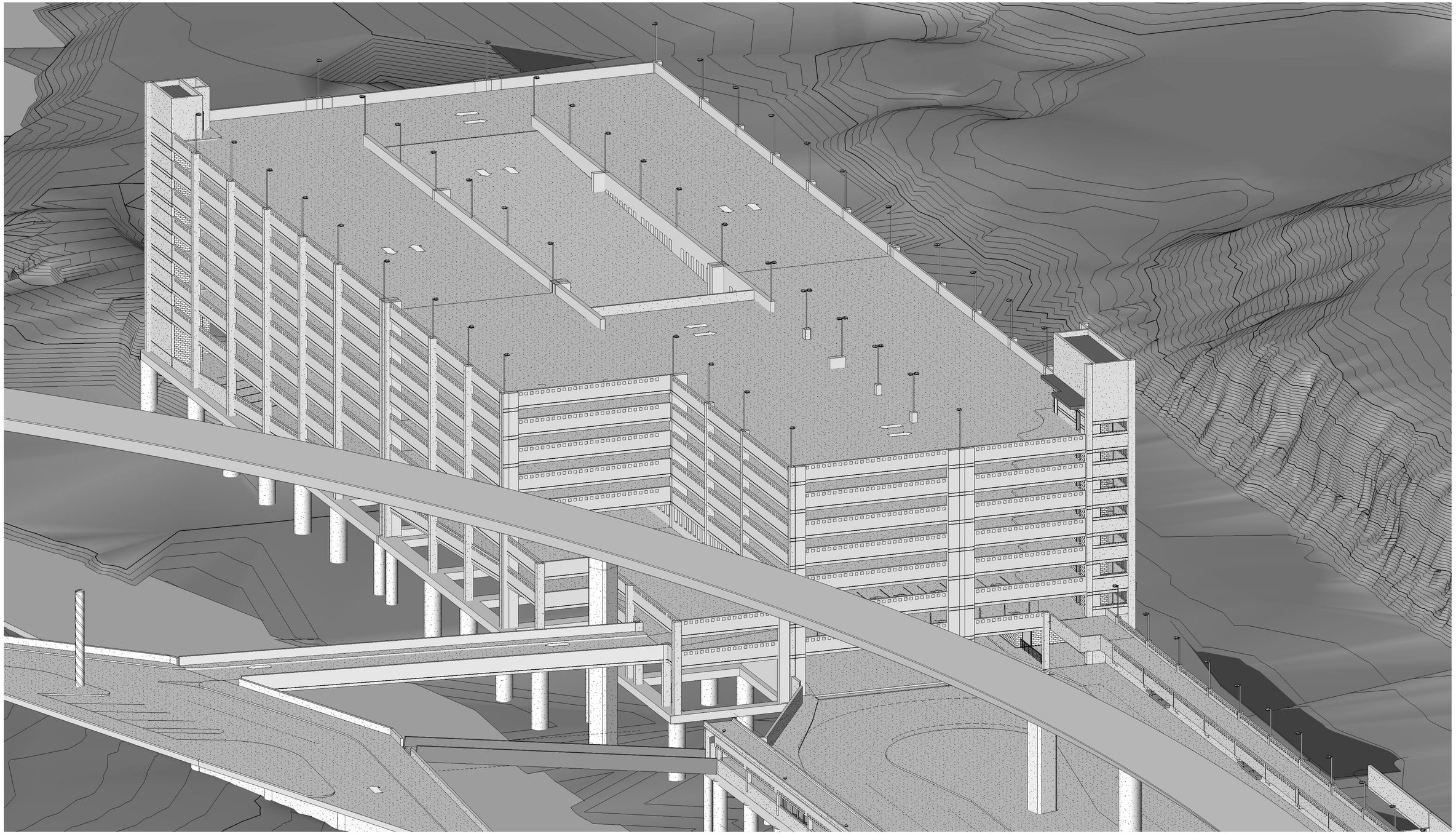

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: D V Shah
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Checked: A Onumah
Approved: K Parmar
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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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Subconsultant:

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PEARL HIGHLANDS STATION

PARKING DECK 3D VIEWS

Contract No.: SV-245
CADD File: SC4D-H07-AR415
Drawing No.: AR415 Rev:
Scale: N/A
Page No.: 147 of 180

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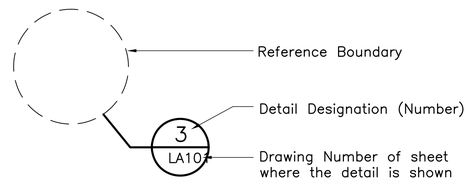
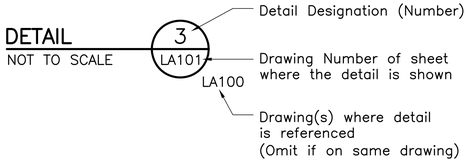
GENERAL NOTES

1. "EB Track" denotes the centerline of the Eastbound Track. "WB Track" denotes the centerline of the Westbound Track.
2. Origin of Coordinates: Hawaii State Plane Coordinate Grid System, Zone III with the North American Datum of 83 High Accuracy Reference Network (NAD83 HARN).
3. The proposed WB Track alignment stationing equals to the proposed EB Track alignment stationing in all parallel tangent sections. Station equations are given at the endpoint of each westbound curve.
4. Underground facilities, poles, structures, and utilities have been plotted from available surveys and records. Their locations must be considered approximate only. There may be others, the existence of which is at present unknown. Verification of all the locations, shown or not shown, will be the responsibility of the contractor.
5. The existing conditions shown hereon are based on LiDAR data collected in September and October of 2007, supplemental ground surveys were performed between September of 2007 and December of 2008, and record information from various design projects either constructed, under construction, or proposed. The selected design–build contractor is responsible for verifying existing conditions prior to supplying advanced design documents to the RTD.
6. Contact the Hawaii Department of Transportation (HDOT) and/or the City and County of Honolulu for additional plan sheet details not included in the Standard Details Summary and Standars Plans Summary plan sheets.
7. All remaining trees within project limits are to remain and be protected unless otherwise noted.
8. All utilities servicing existing facilities shall remain in service at all times. Exercise caution during tree root removal. Notify owner's representative immediately if service is interrupted and pay for repair at no cost to owner.
9. All existing utilities, site furnishings, paving, landscape and other elements to remain shall be protected from any damage unless otherwise noted.
10. Contractor shall notify all necessary utility companies 48 hours minimum prior to digging for verification of all underground utilities, and other obstructions and coordinate with owner's representative prior to initiating operations.
11. Landscape contractor shall coordinate all work with related contractors and with the general construction of the project in order not to impede the progress of the work of others or the contractor's own work.
12. Landscape contractor shall field adjust locations of plant material as necessary to avoid damage to existing underground utilities and/or existing above ground elements. All changes required shall be completed at the contractor's expense and shall be coordinated with the owner's representative and the landscape architect.
13. The contractor shall perform its own quantity estimates for the purposes of bidding and construction. The contractor shall provide plants and other materials in the quantities necessary to complete the installation as shown on the drawings.
14. Stake tree and palm locations and obtain approval of the landscape architect prior to planting trees and palms.

SYMBOLS

DETAILS





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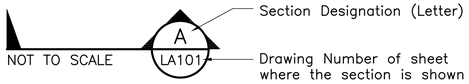

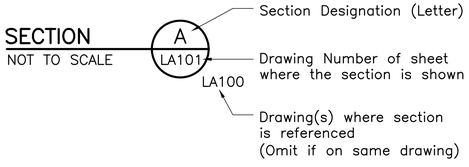

HATCH

Station Platform

SPECIAL TERMS

Makai	Ocean
Mauka	Mountain

GENERAL SYMBOLS

&	And
@	At
#	Number
ø	Diameter
%	Percent
=	Equal
>	Greater Than
<	Less Than
≥	Greater Than or Equal To
≤	Less Than or Equal To

LANDSCAPE SYMBOLS

Existing Palm

Existing Tree

Existing Vegetation

Large Palm		
Royal Palm		Roystonea regia
Coconut Palm		Cocos nucifera
Medium Tree		
Rainbow Shower		Cassia javanica x C. fistula
Hong Kong Orchid		Bauhinia blakeana
Medium Palm		
Manila		Veitchia merrillii
Loulu		Pritchardia spp.
Small Palm		
Areca Palm		Chrysalidocarpus lutescens
Shrub		
Yellow hibiscus		Hibiscus rosa sinensis 'Yellow'
Groundcover 1		
Lantana		Lantana montevidensis 'Gold'
Ilima papa		Sida fallax
Akia		Wikstroemia uva–ursi
Groundcover 2		
Kupukupu Fern		Nephrolepis cordifolia
Peace Lily		Spathiphyllum spp.
Aglonema		Aglonema spp.
Turf		
Zoysia		Zoysia 'El Toro'
Range Grass		
Riparian Revegetation		

ABBREVIATIONS

℄	Baseline
BWS	Board of Water Supply
℄	Centerline
Conc	Concrete
Cont	Container
Dia	Diameter
Dwg	Drawing
EB	Eastbound
FS	Field specimen
Gal	Gallon
GB#	Gap Breaker
HDPE	High density polyethylene
Max	Maximum
Min	Minimum
MH	Manhole
N/A	Not Applicable
NB	Northbound
NIC	Not in Contract
N.I.C.	Not in Contract
NTS	Not to scale
OC	On Center
ROW	Right of Way
RPBP	Reduce Pressure Backflow Preventer
SB	Southbound
SR	State Route
Typ	Typical
Typ Sym	Typical Symbol
WB	Westbound
WM	Water meter

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

GENERAL LANDSCAPE NOTES, SYMBOLS, AND ABBREVIATIONS

Contract No.: SV–245
CADD File: SC4–J01–LG001
Drawing No.: LG001 Rev.
Scale: NONE
Page No. 148 of 180

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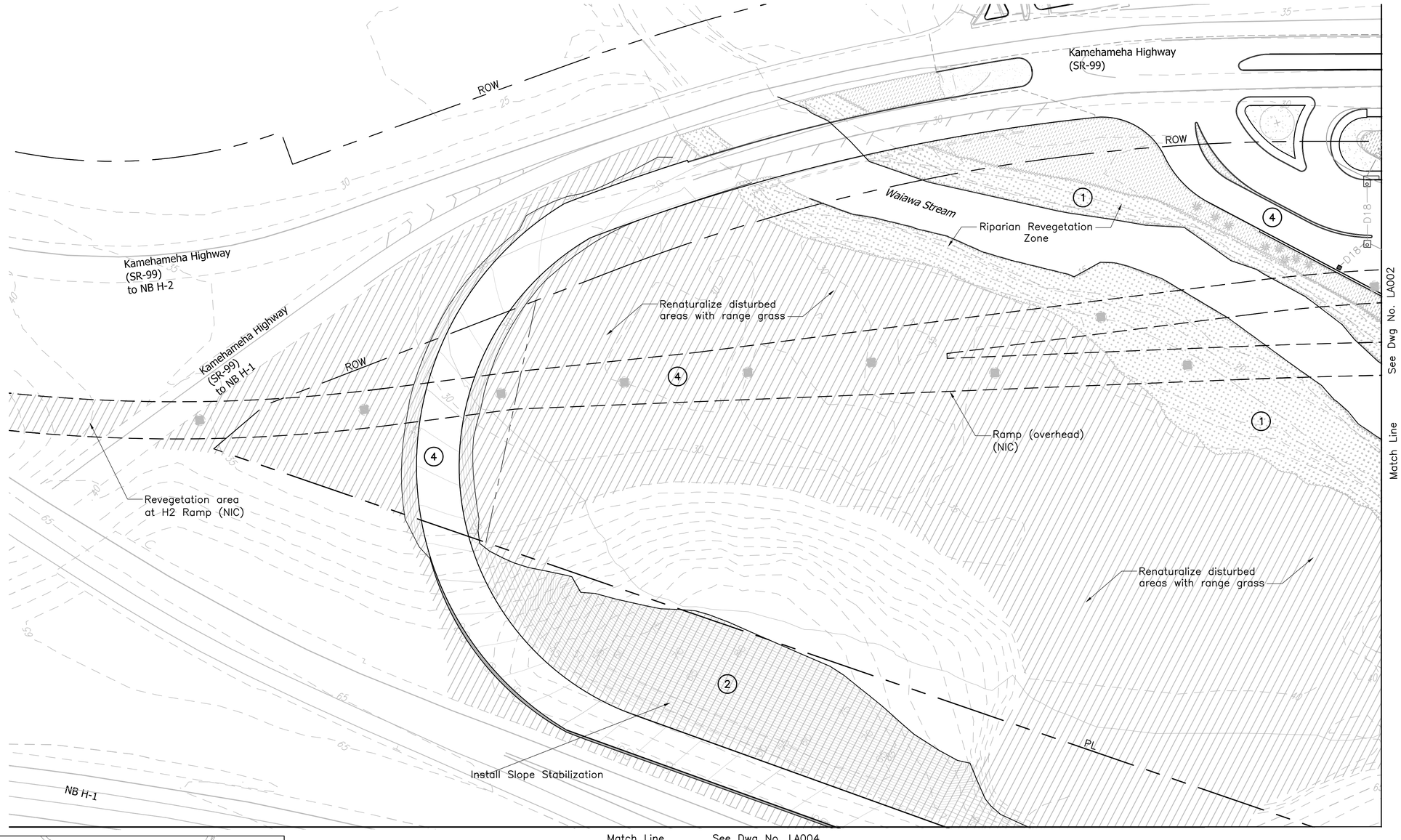
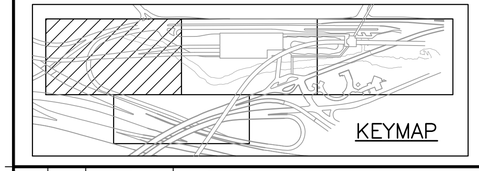


LEGEND

1. Mitigation Area for Riparian Zone (coordination with Biologist pending)
2. Range Grass Area
3. Walkway
4. Roadway
5. Bus Transit Center
6. Parking Structure



40' 0 40'

Rev	By	Date	Description

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PEARL HIGHLANDS STATION

LANDSCAPE SITE PLAN

SHEET 1 OF 4

Contract No.: SV-245
CADD File: SC4-J02-LA001
Drawing No: LA001 Rev.
Scale: 1"=40'
Page No. 149 of 180

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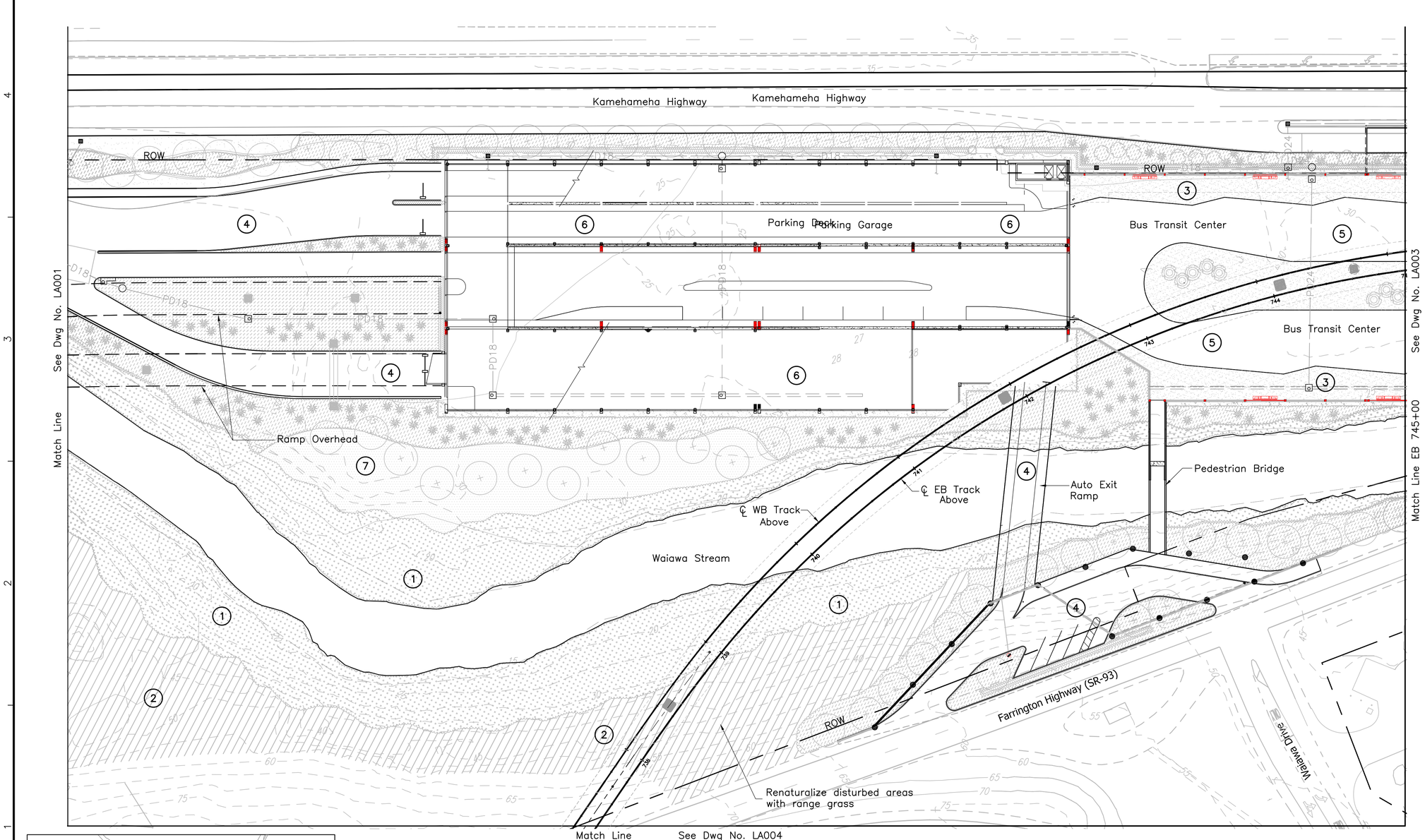
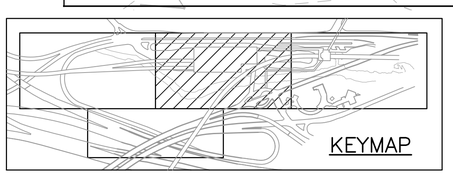


LEGEND

1. Mitigation Area for Riparian Zone (coordination with Biologist pending)
2. Range Grass Area
3. Walkway
4. Roadway
5. Bus Transit Center
6. Parking Structure
7. Constructed Wetland



40' 0 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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PEARL HIGHLANDS STATION

LANDSCAPE SITE PLAN

SHEET 2 OF 4

Contract No.: SV-245
CADD File: SC4-J02-LA002
Drawing No.: LA002 Rev.
Scale: 1"=40'
Page No. 150 of 180

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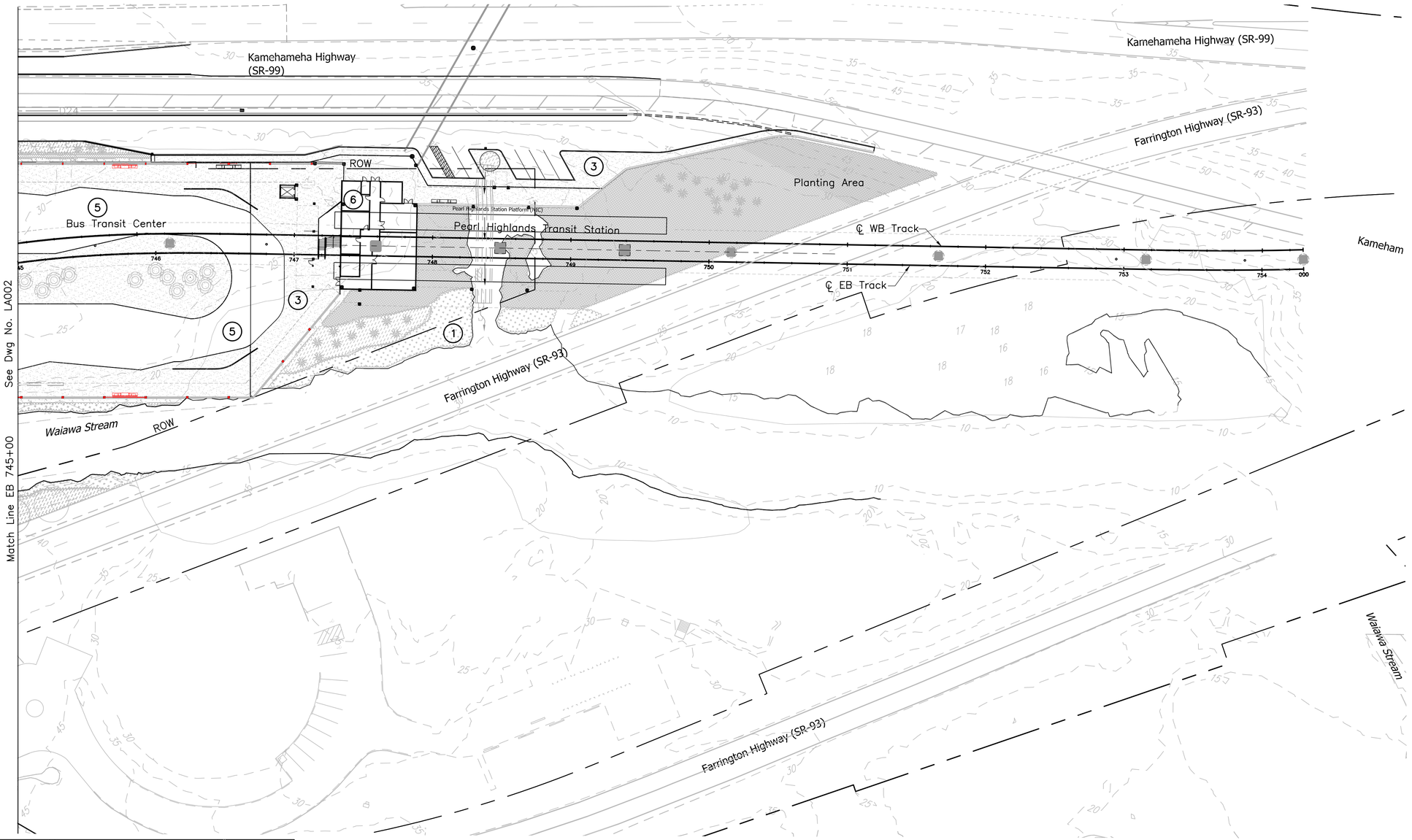

LEGEND

1. Mitigation Area for Riparian Zone (coordination with Biologist pending)
2. Range Grass Area
3. Walkway
4. Roadway
5. Bus Transit Center
6. Station Entry Building

KEYMAP

40' 0 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09-11-09

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PEARL HIGHLANDS STATION

LANDSCAPE SITE PLAN

SHEET 3 OF 4

Contract No.: SV-245
CADD File: SC4-J02-LA003
Drawing No.: LA003 Rev.
Scale: 1"=40'
Page No. 151 of 180

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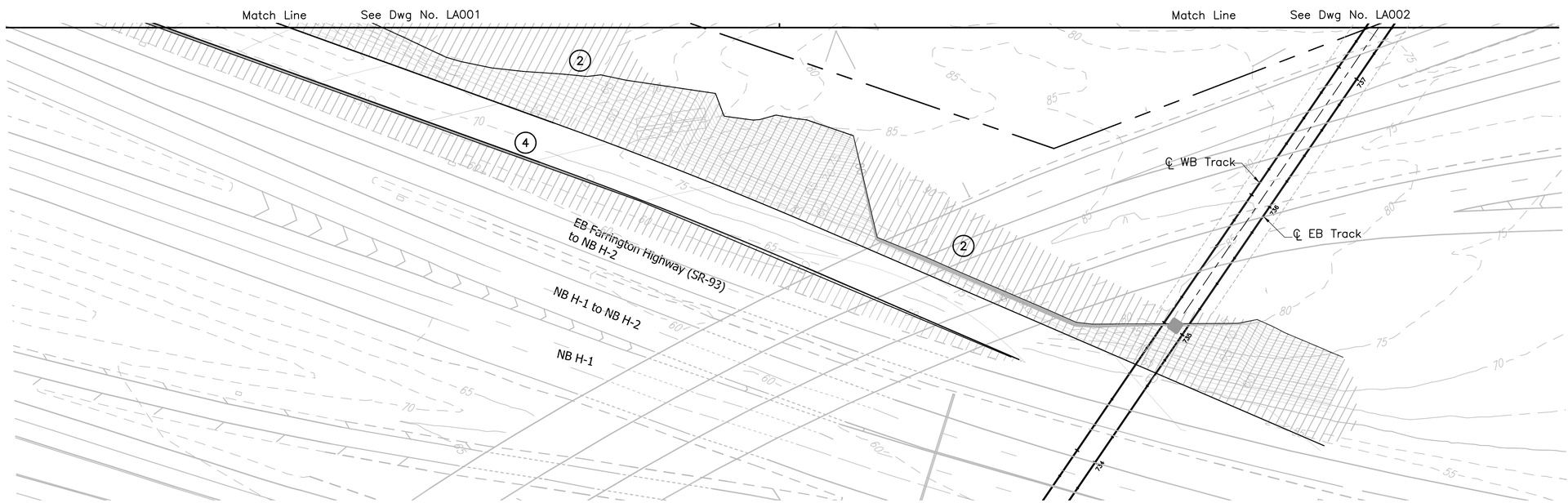
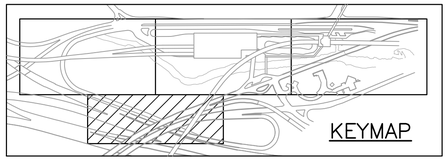


LEGEND

1. Mitigation Area for Riparian Zone (coordination with Biologist pending)
2. Range Grass Area
3. Walkway
4. Roadway



40' 0 40'

Rev	By	Date	Description

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Approved: A Kutsunai
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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB 120 YEARS PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

LANDSCAPE SITE PLAN

SHEET 4 OF 4

Contract No.: SV–245
CADD File: SC4–J02–LA004
Drawing No: LA004 Rev.
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Page No. 152 of 180

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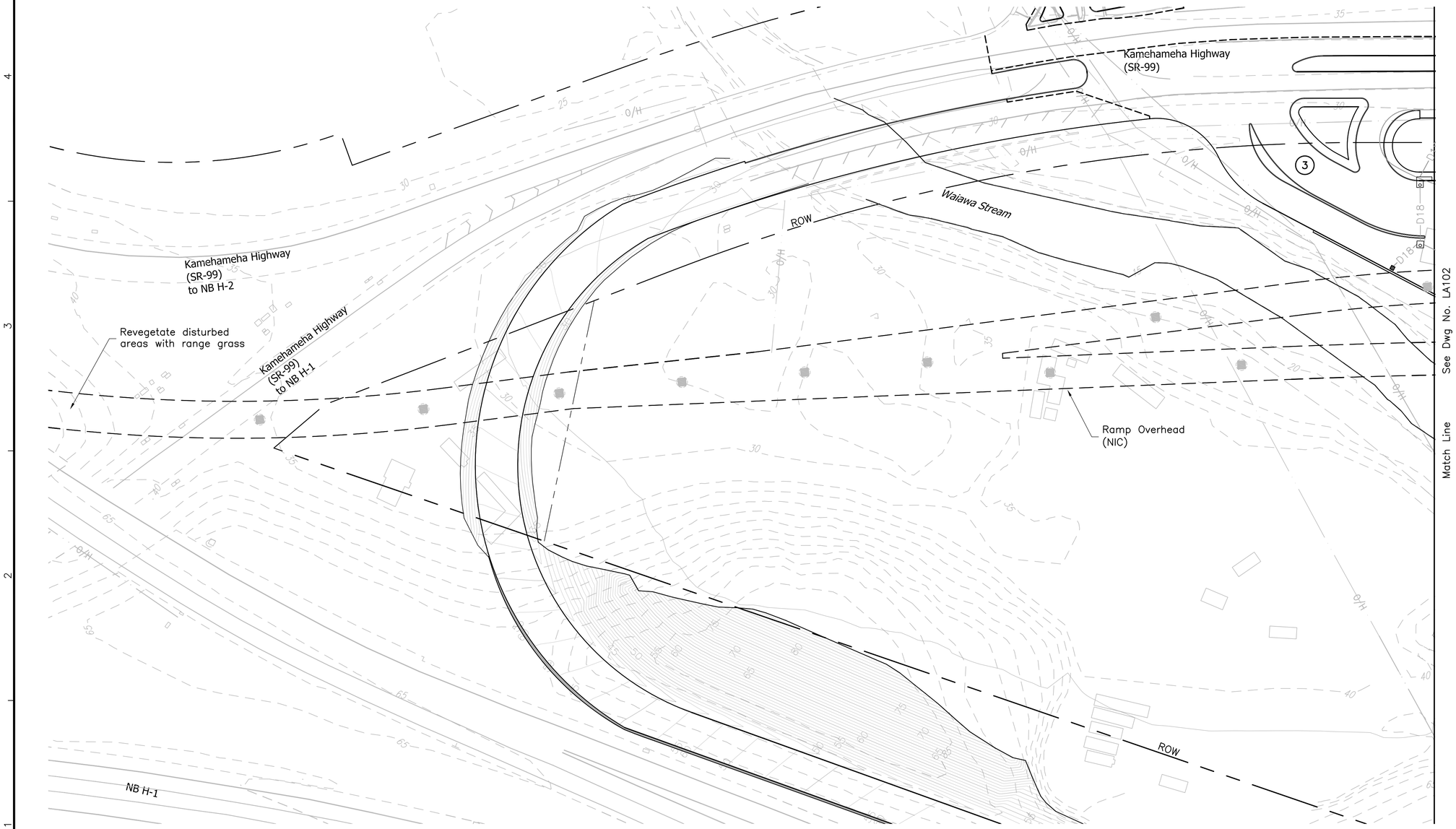
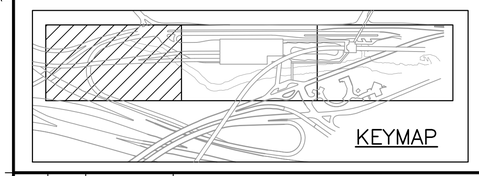


LEGEND

1. Concrete
2. Concrete with Banana Pattern See sheet LA401
3. Asphalt – See Civil Plans



40' 0 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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Drawn: B Tanimura
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

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CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant:
PB 100 YEARS PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

PAVING PLAN - GROUND LEVEL

SHEET 1 OF 3

Contract No.: SV–245
CADD File: SC4–J03–LA101
Drawing No: LA101 Rev.
Scale: 1"=40'
Page No. 153 of 180

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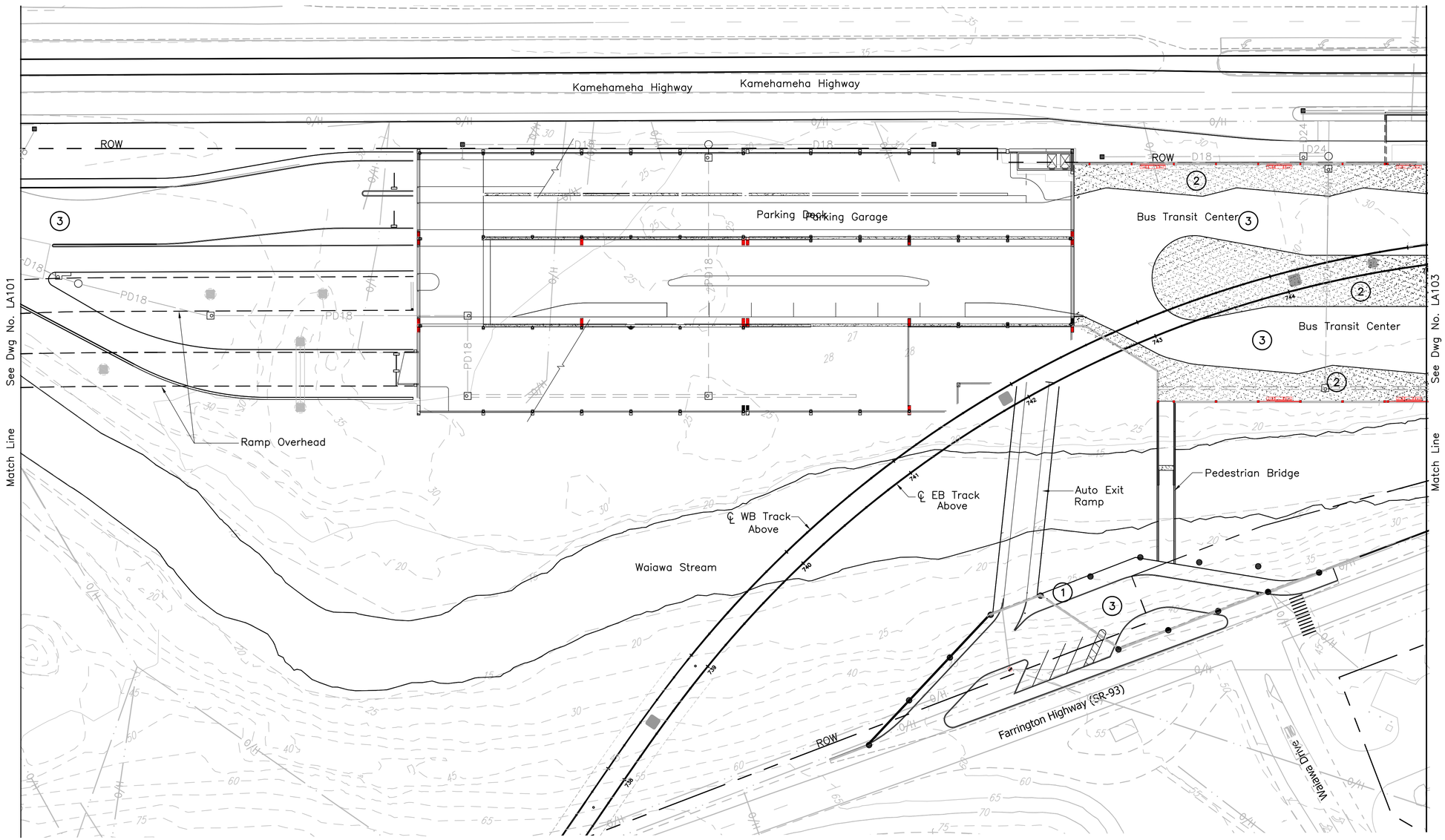

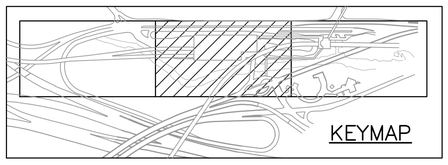

LEGEND

1. Concrete
2. Concrete with Banana Pattern See sheet LA401
3. Asphalt – See Civil Plans

40' 0 40'

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PEARL HIGHLANDS STATION

PAVING PLAN - GROUND LEVEL

SHEET 2 OF 3

Contract No.: SV-245
CADD File: SC4-J03-LA102
Drawing No.: LA102 Rev.
Scale: 1"=40'
Page No.: 154 of 180

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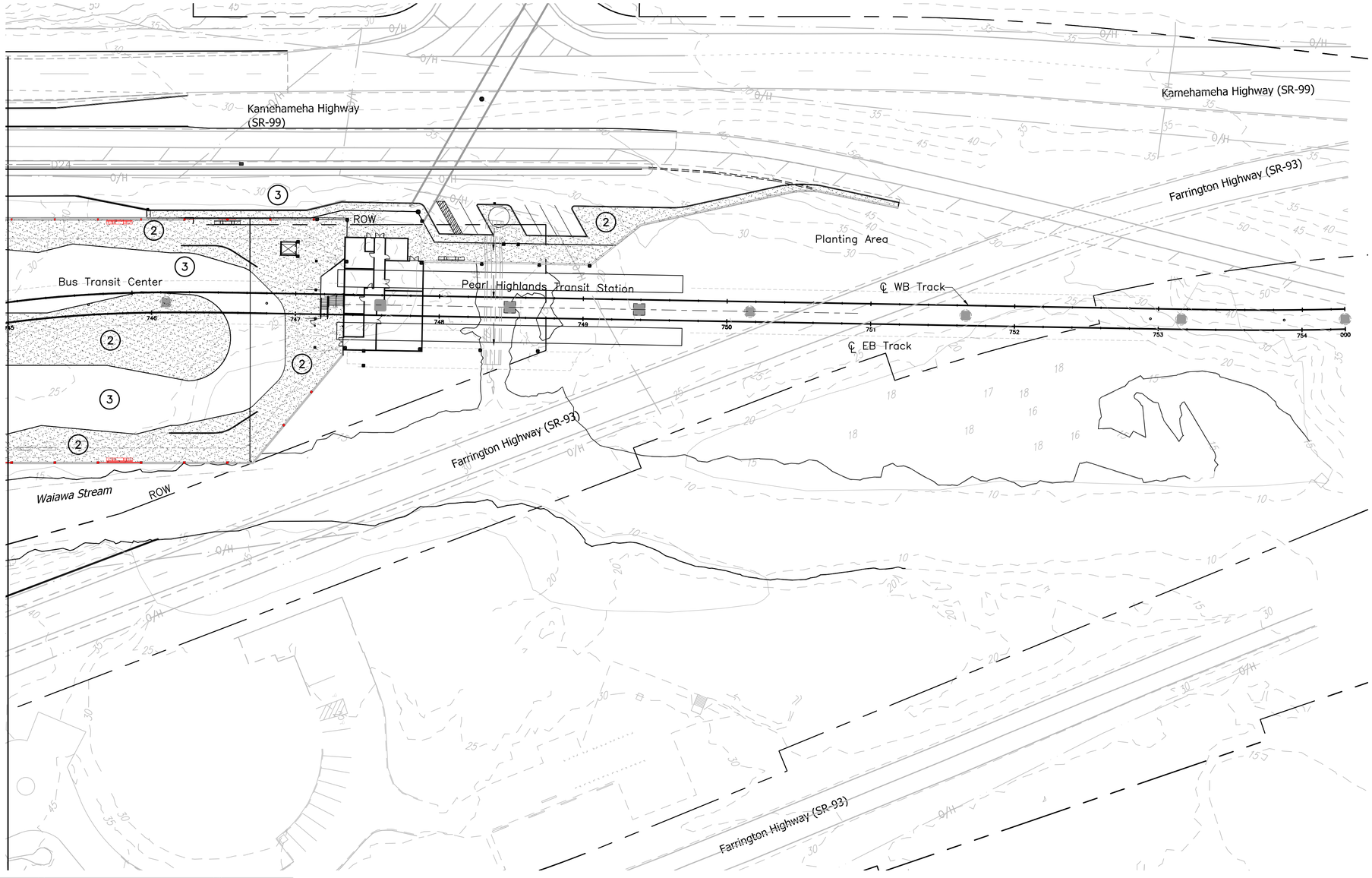
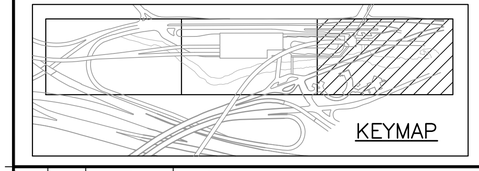


LEGEND

1. Concrete
2. Concrete with Banana Pattern See sheet LA401
3. Asphalt – See Civil Plans



40' 0 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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PEARL HIGHLANDS STATION

PAVING PLAN - GROUND LEVEL

SHEET 3 OF 3

Contract No.: SV–245
CADD File: SC4–J03–LA103
Drawing No: LA103 Rev.
Scale: 1"=40'
Page No. 155 of 180

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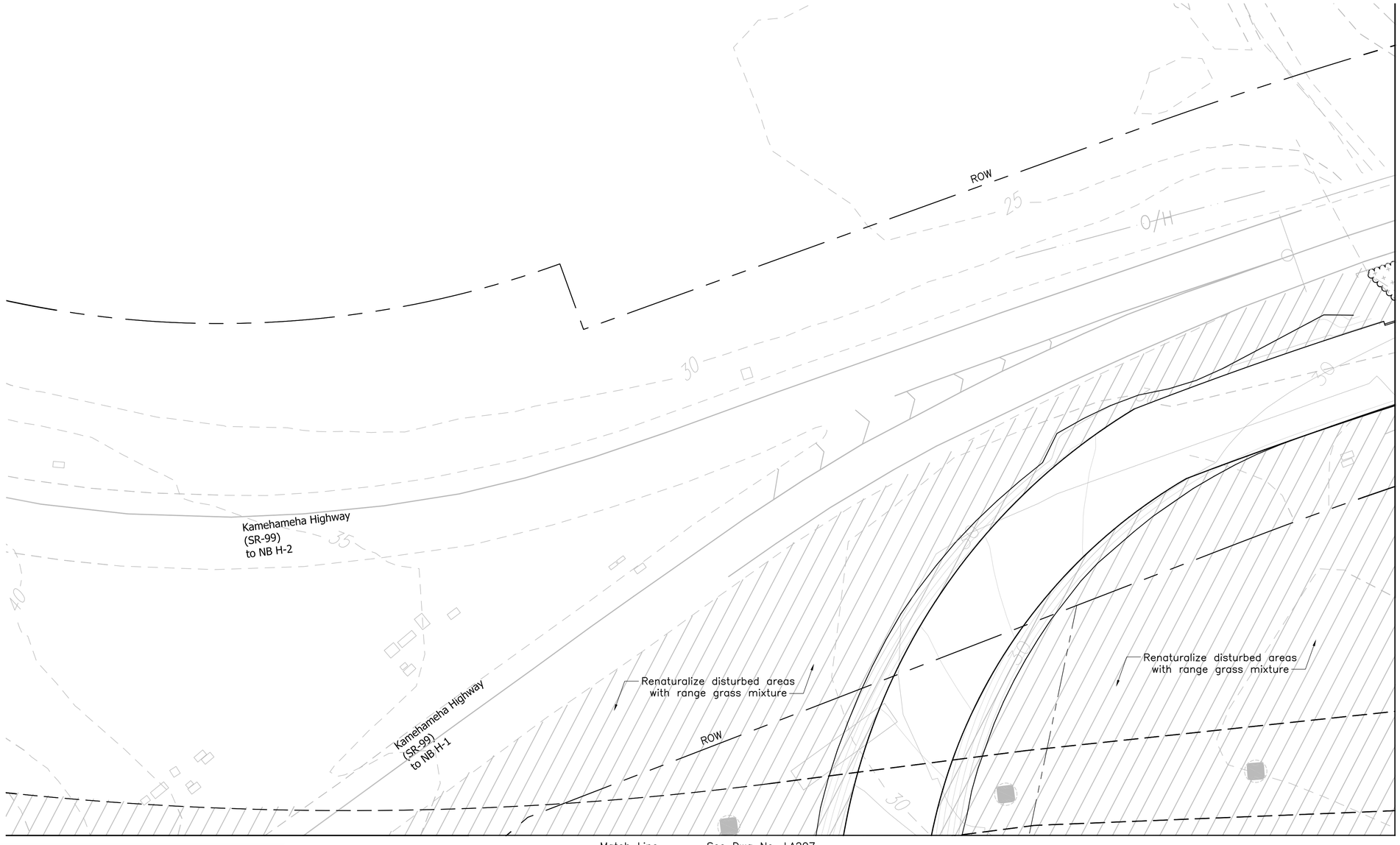

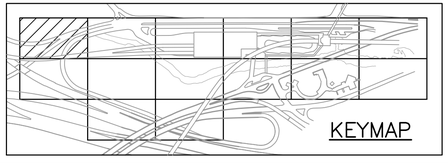

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
- Groundcover 2: Kupukupu Fern, Peace Lily, Aglonema
- Turf: Zoysia

PLANTING NOTES:

1. Backfill mix shall consist of three (3) parts of imported screened soil to one (1) part organic soil amendments (see specifications). Add one (1) pound of 10–30–10 fertilizer to one (1) cubic yard of backfill mix. Mix thoroughly on project site prior to any planting operations.
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3. Pre–emergent herbicide shall be installed per manufacturer's guidelines under gravel or mulch.
4. Planting tablets for trees, palms, and shrubs shall be as follows:
   A) Field Specimen — 12 tablets
   B) 25 gallon — 8 tablets
   C) 15 gallon — 5 tablets
   D) 2–1/2 gallon — 2 tablets
   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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Subconsultant: BELTCOLLINS
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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 1 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA201
Drawing No.: LA201 Rev.:
Scale: 1"=20'
Page No.: 156 of 180

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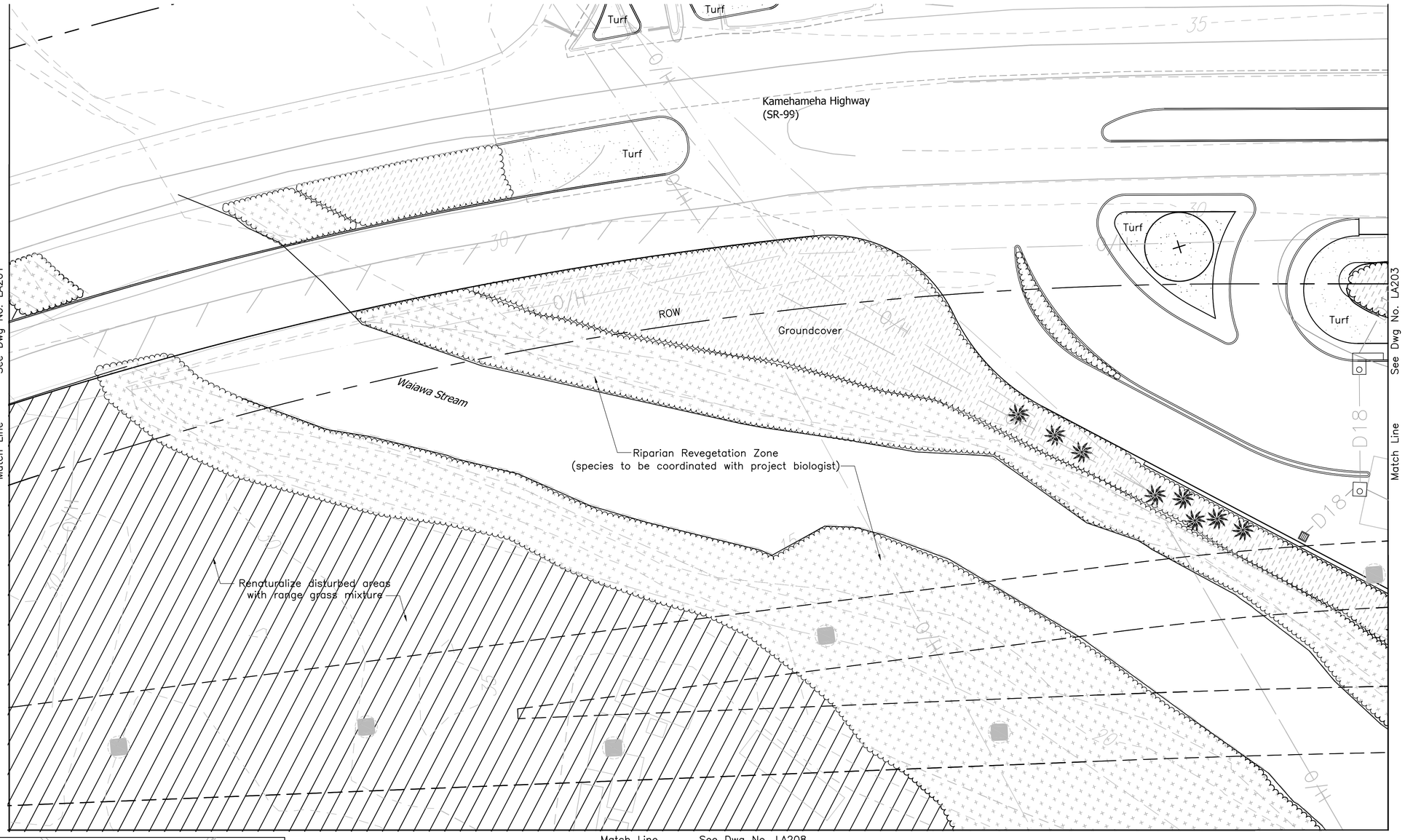

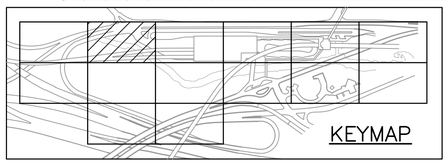

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
- Groundcover 2: Kupukupu Fern, Peace Lily, Aglonema
- Turf: Zoysia

PLANTING NOTES:

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B)	25 gallon	8 tablets
C)	15 gallon	5 tablets
D)	2–1/2 gallon	2 tablets

   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 2 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA202
Drawing No.: LA202 Rev.:
Scale: 1"=20'
Page No.: 157 of 180

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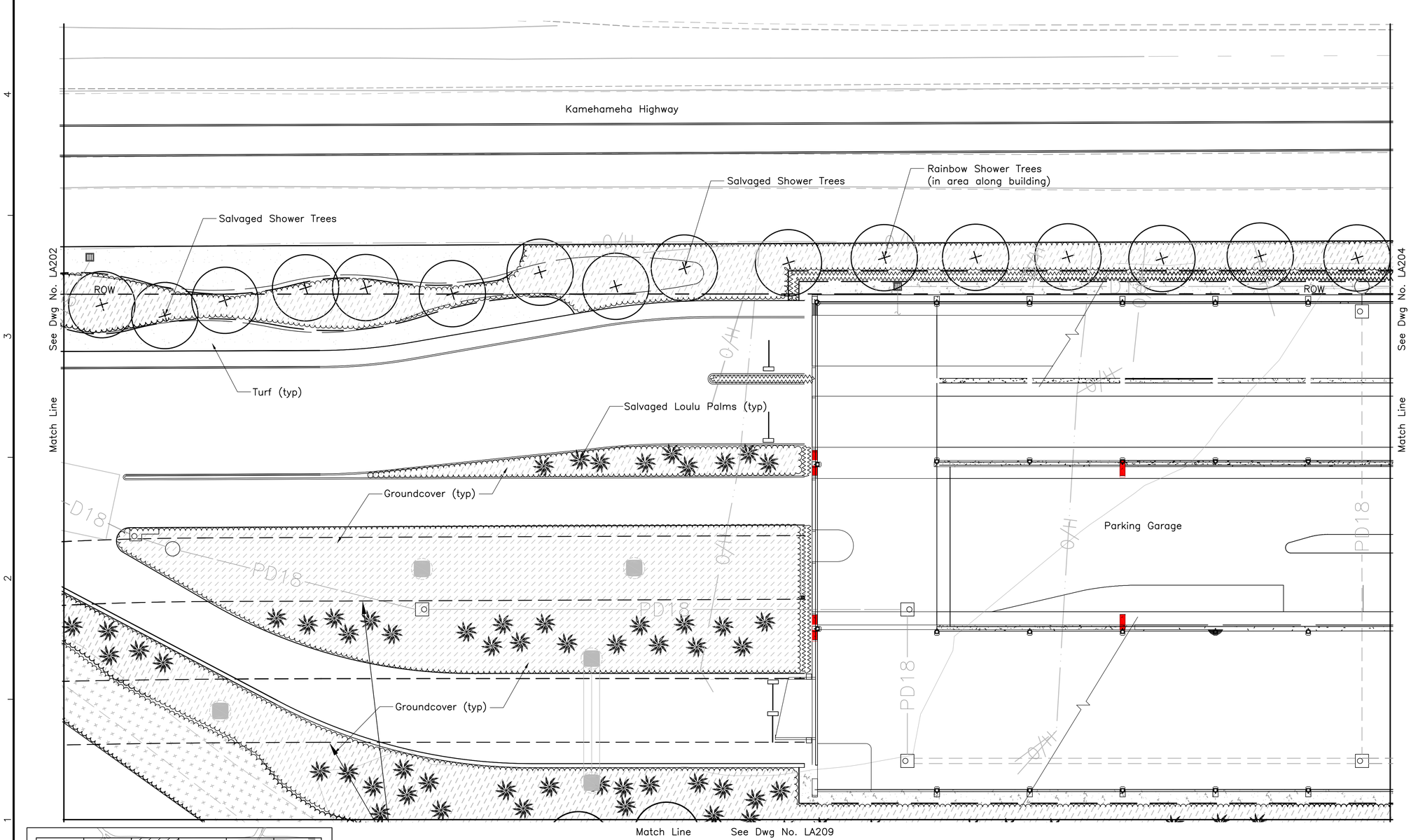

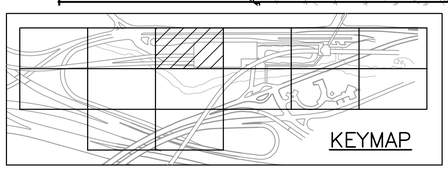

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
- Groundcover 2: Kupukupu Fern, Peace Lily, Aglonema
- Turf: Zoysia

PLANTING NOTES:

1. Backfill mix shall consist of three (3) parts of imported screened soil to one (1) part organic soil amendments (see specifications). Add one (1) pound of 10–30–10 fertilizer to one (1) cubic yard of backfill mix. Mix thoroughly on project site prior to any planting operations.
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D)	2–1/2 gallon	2 tablets

   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 3 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA203
Drawing No.: LA203 Rev.
Scale: 1"=20'
Page No.: 158 of 180

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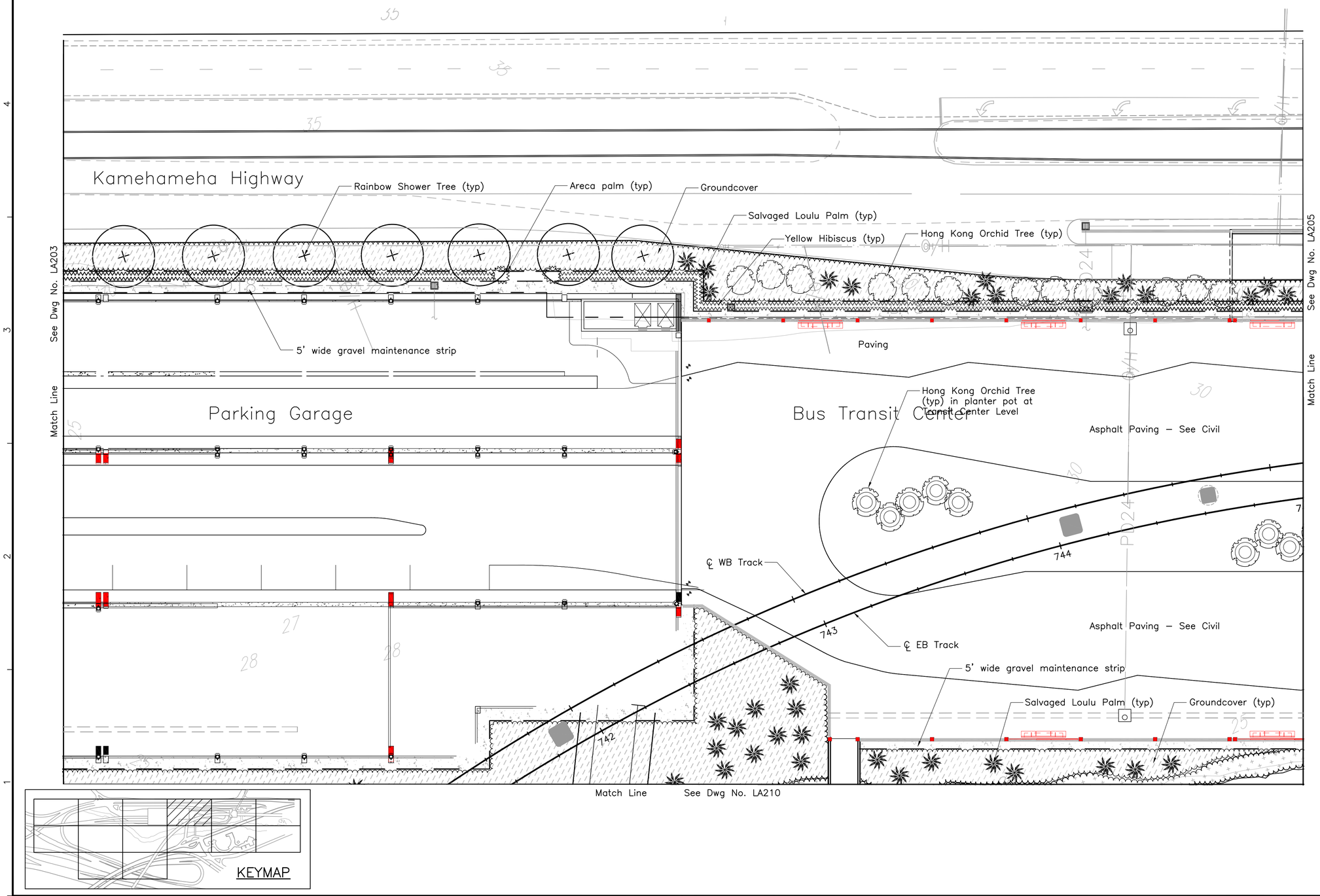

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
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- Turf: Zoysia

PLANTING NOTES:

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5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 4 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA204
Drawing No.: LA204 Rev.
Scale: 1"=20'
Page No.: 159 of 180

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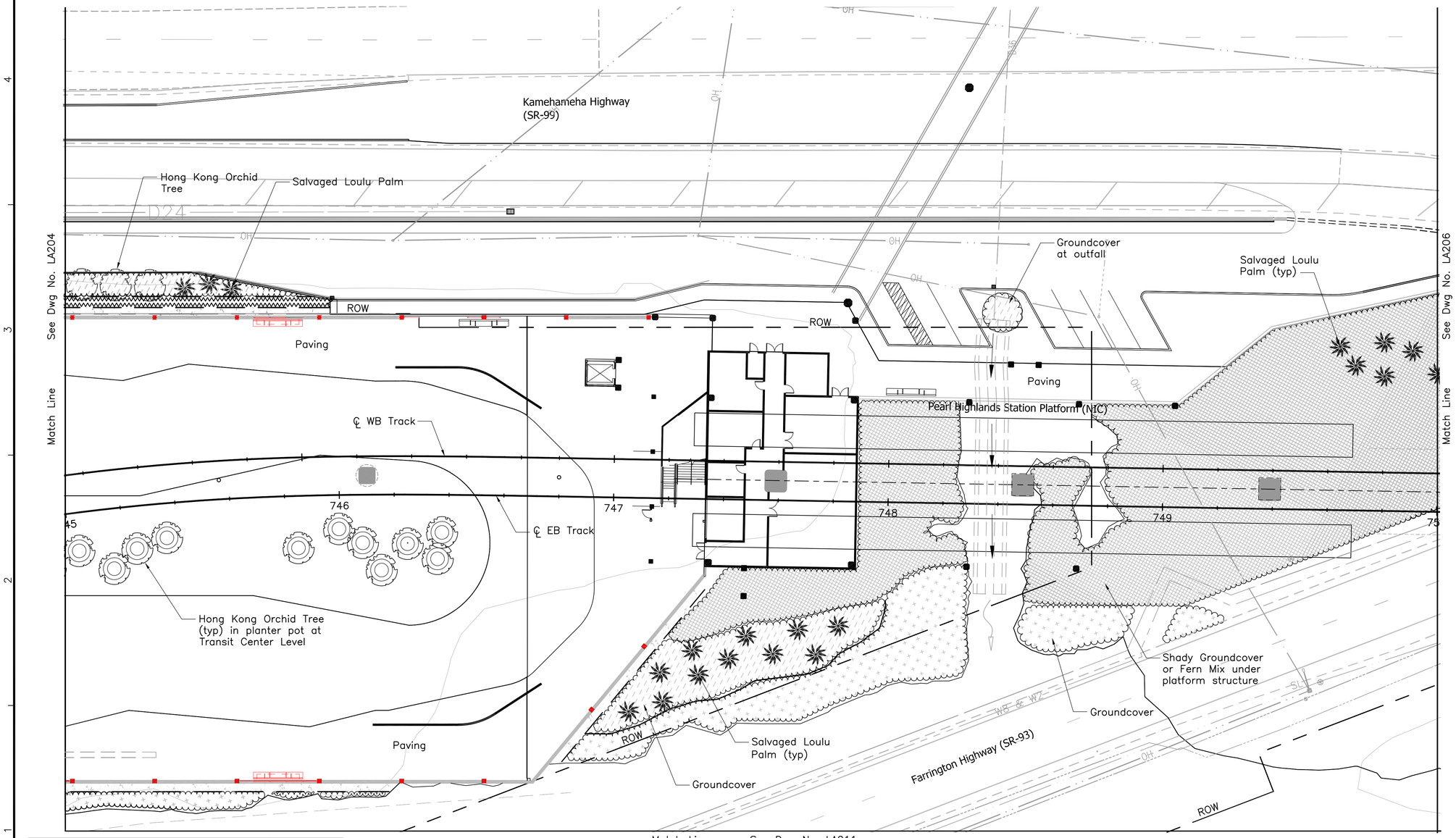

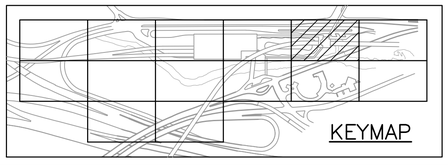

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
- Groundcover 2: Kupukupu Fern, Peace Lily, Aglonema
- Turf: Zoysia

PLANTING NOTES:

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D)	2–1/2 gallon	2 tablets

   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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Subconsultant: BELTCOLLINS
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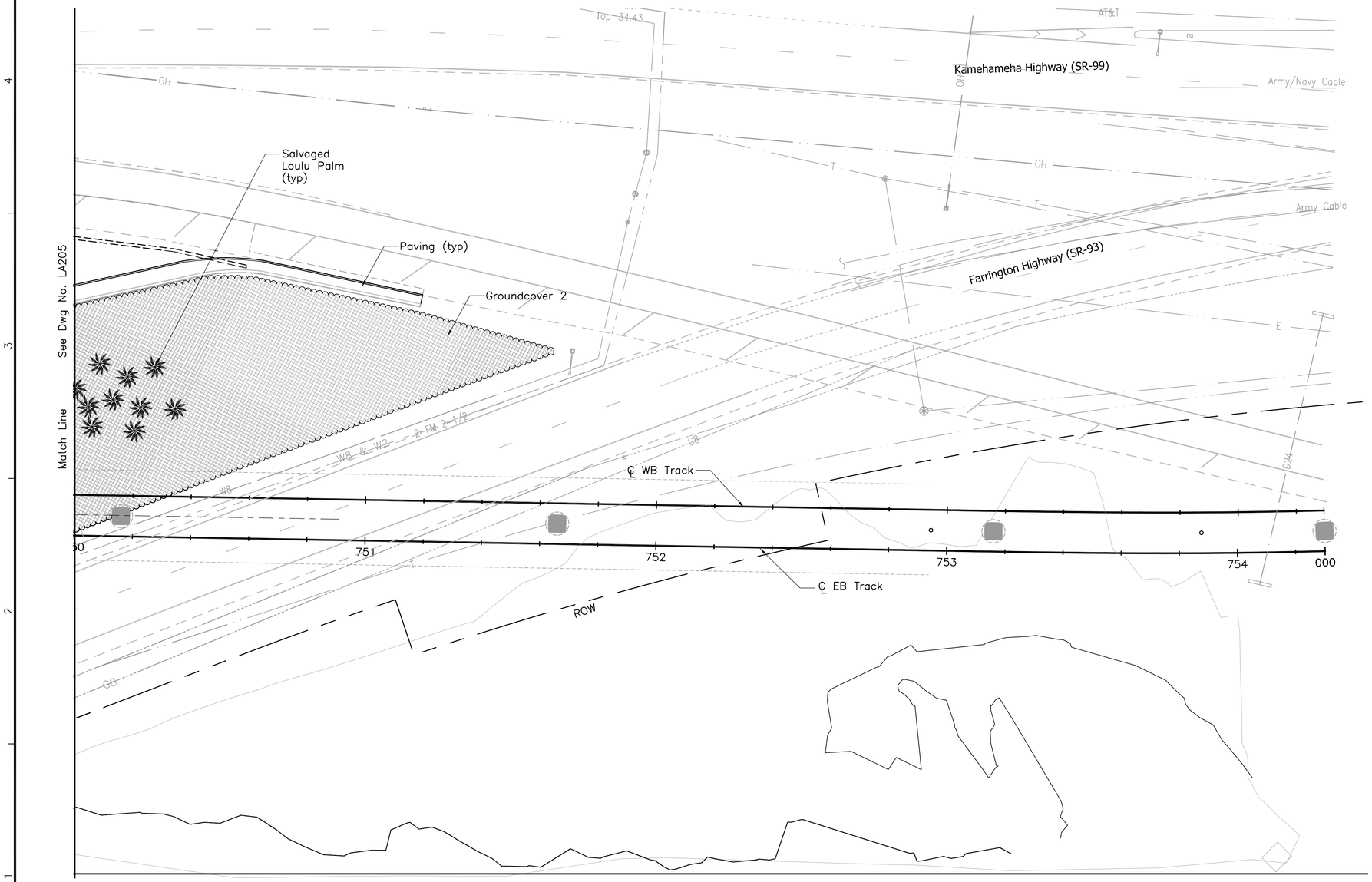
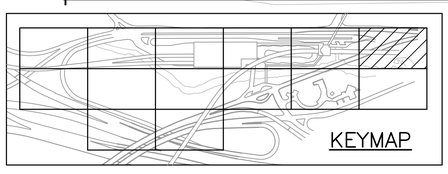
PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 5 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA205
Drawing No: LA205 Rev.
Scale: 1"=20'
Page No. 160 of 180





LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
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- Turf: Zoysia

PLANTING NOTES:

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D)	2–1/2 gallon	2 tablets

   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 6 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA206
Drawing No.: LA206 Rev.
Scale: 1"=20'
Page No.: 161 of 180

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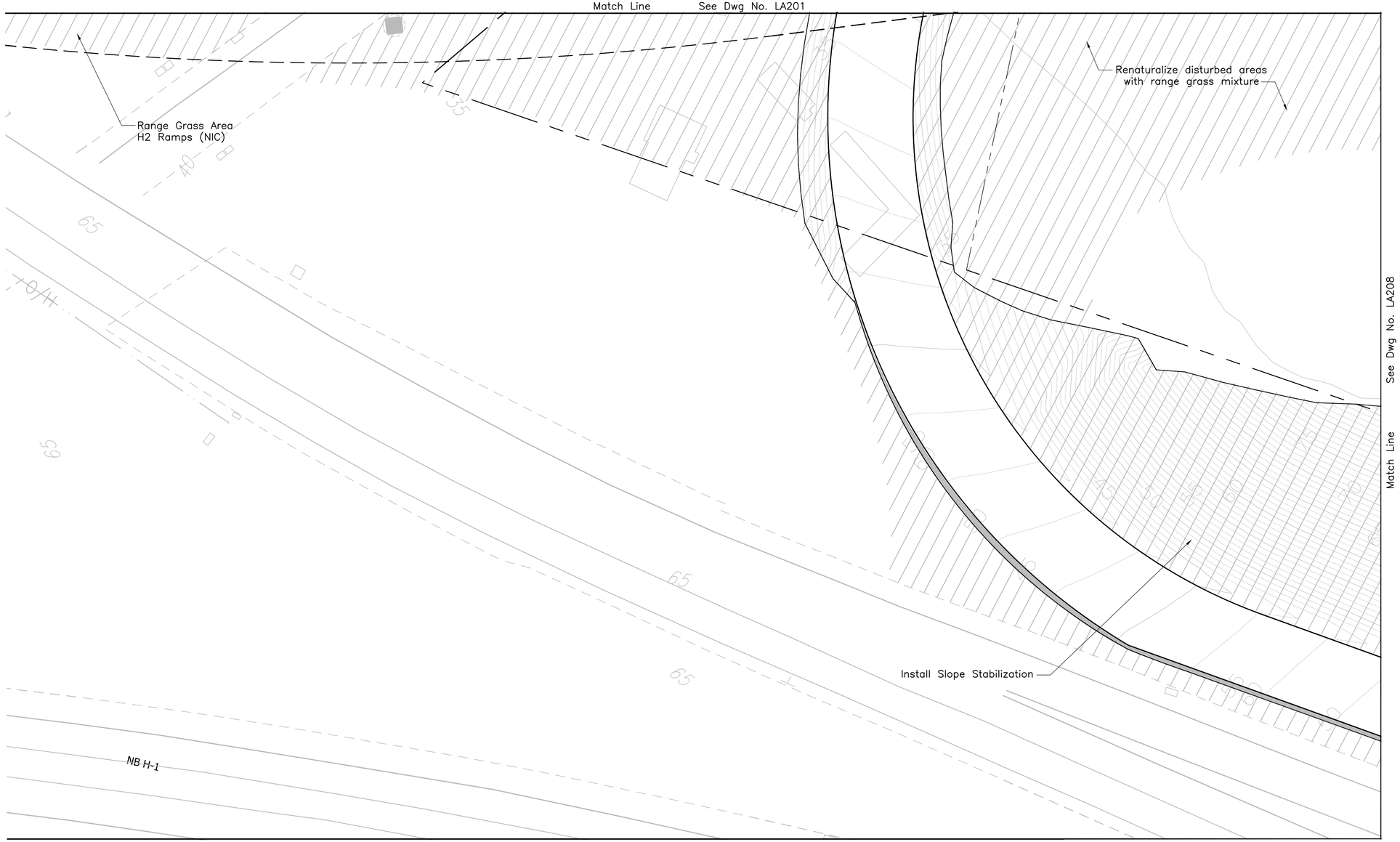

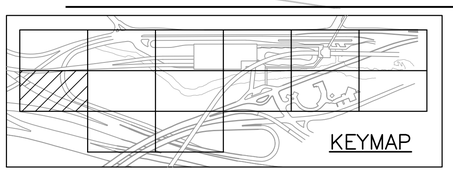

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
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PLANTING NOTES:

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D)	2–1/2 gallon	2 tablets

   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 7 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA207
Drawing No.: LA207 Rev.:
Scale: 1"=20'
Page No.: 162 of 180

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Match Line See Dwg No. LA202

See Dwg No. LA207

Match Line

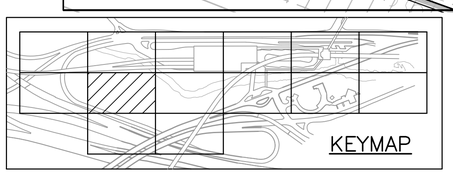
See Dwg No. LA009

Match Line

Renaturalize disturbed areas with range grass mixture

Renaturalize disturbed areas with range grass mixture

Match Line See Dwg No. LA213



LEGEND

Medium Tree
Rainbow Shower

Small Tree
Hong Kong Orchid

Medium Palm
Manila
Loulu

Small Palm
Areca Palm

Shrub
Yellow hibiscus

Groundcover 1
Lantana
Ilima papa
Akia

Groundcover 2
Kupukupu Fern
Peace Lily
Aglonema

Turf
Zoysia

PLANTING NOTES:

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   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 8 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA208
Drawing No.: LA208 Rev.
Scale: 1"=20'
Page No.: 163 of 180

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Match Line See Dwg No. LA203

Groundcover (typ)

Salvaged Loulu Palm (typ)

Salvaged Shower Tree (typ)

Constructed Wetland
(species to be coordinated
with project biologist)

Waiawa Stream

Riparian Revegetation Zone
(species to be coordinated with project biologist)

Waiawa stream

Guideway
(overhead)

Riparian Revegetation Zone
(species to be coordinated with project biologist)

℄ WB Track

℄ EB Track

ROW

Renaturalize disturbed areas
with range grass mixture

Match Line See Dwg No. LA208

Match Line See Dwg No. LA210

Match Line See Dwg No. LA214

KEYMAP

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
- Groundcover 2: Kupukupu Fern, Peace Lily, Aglonema
- Turf: Zoysia

PLANTING NOTES:

1. Backfill mix shall consist of three (3) parts of imported screened soil to one (1) part organic soil amendments (see specifications). Add one (1) pound of 10–30–10 fertilizer to one (1) cubic yard of backfill mix. Mix thoroughly on project site prior to any planting operations.
2. No. 3 coarse gravel shall be coarse aggregate crushed blue lava rock, dense and close grain. The specific gravity of rock shall be not less than 2.65. Gravel shall be obtained from clean, hard blue lava rock and shall be free from disintegrated stone, vegetable or other deleterious substances.
3. Pre–emergent herbicide shall be installed per manufacturer's guidelines under gravel or mulch.
4. Planting tablets for trees, palms, and shrubs shall be as follows:

A)	Field Specimen	12 tablets
B)	25 gallon	8 tablets
C)	15 gallon	5 tablets
D)	2–1/2 gallon	2 tablets

   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: BELT COLLINS
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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 9 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA209
Drawing No.: LA209 Rev.
Scale: 1"=20'
Page No. 164 of 180

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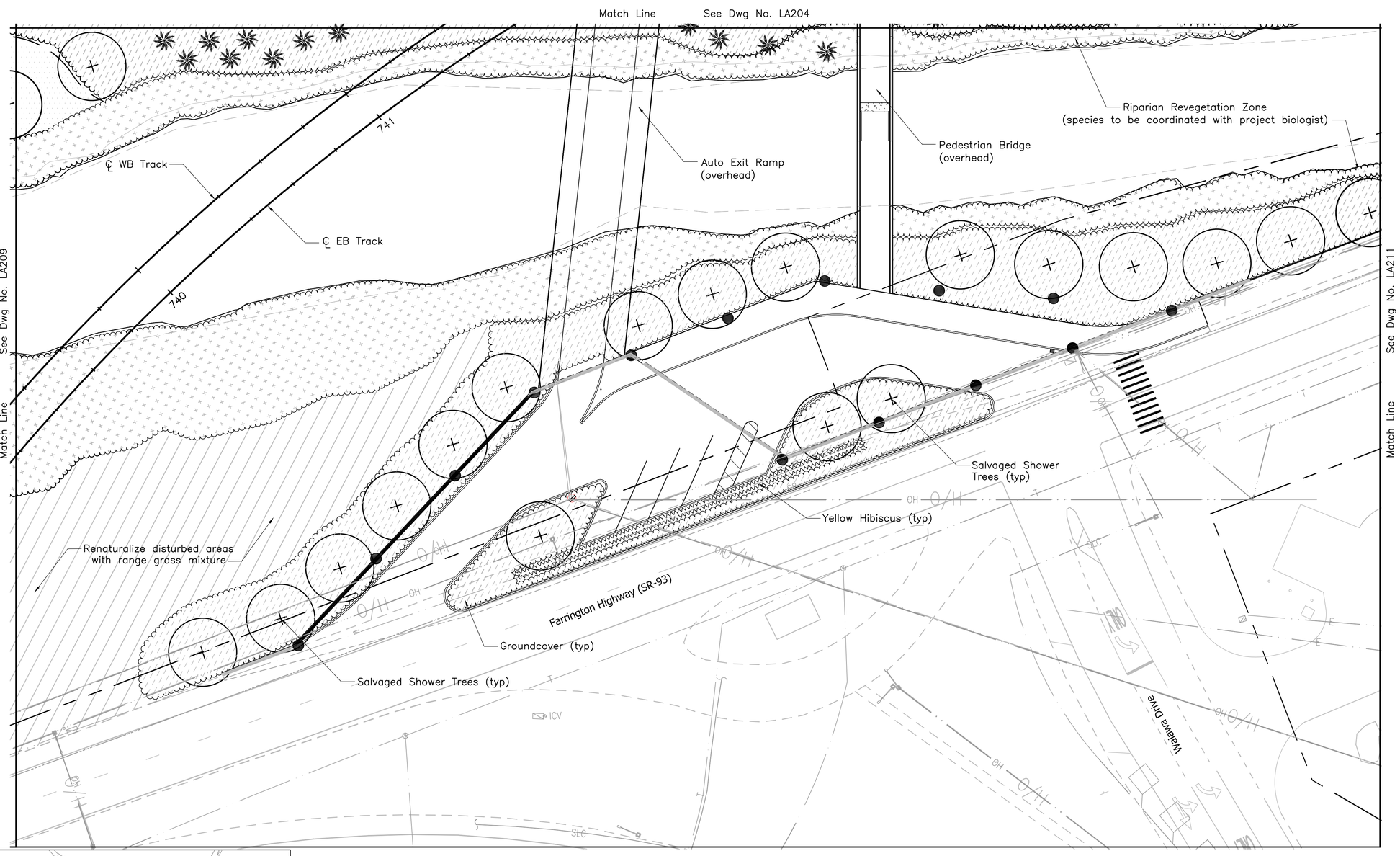

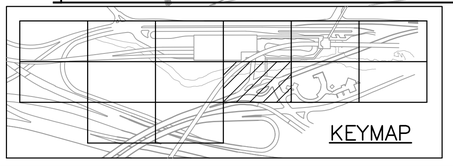

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
- Groundcover 2: Kupukupu Fern, Peace Lily, Aglonema
- Turf: Zoysia

PLANTING NOTES:

1. Backfill mix shall consist of three (3) parts of imported screened soil to one (1) part organic soil amendments (see specifications). Add one (1) pound of 10–30–10 fertilizer to one (1) cubic yard of backfill mix. Mix thoroughly on project site prior to any planting operations.
2. No. 3 coarse gravel shall be coarse aggregate crushed blue lava rock, dense and close grain. The specific gravity of rock shall be not less than 2.65. Gravel shall be obtained from clean, hard blue lava rock and shall be free from disintegrated stone, vegetable or other deleterious substances.
3. Pre–emergent herbicide shall be installed per manufacturer's guidelines under gravel or mulch.
4. Planting tablets for trees, palms, and shrubs shall be as follows:

A)	Field Specimen	12 tablets
B)	25 gallon	8 tablets
C)	15 gallon	5 tablets
D)	2–1/2 gallon	2 tablets

   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 10 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA210
Drawing No: LA210 Rev.
Scale: 1"=20'
Page No. 165 of 180

2009–09–10 6:20 PM L:\2008710100_HHCTCP\CAD\Blocks\Stations\SC4–Landscape–Sheets.dwg

Match Line See Dwg No. LA205

Waiawa Stream

Salvaged Shower Trees (typ)

Riparian Revegetation Zone
(species to be coordinated with project biologist)

ROW

Match Line See Dwg No. LA210

See Dwg No. LA212 Match Line

KEYMAP

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
- Groundcover 2: Kupukupu Fern, Peace Lily, Aglonema
- Turf: Zoysia

PLANTING NOTES:

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20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 11 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA211
Drawing No.: LA211 Rev.
Scale: 1"=20'
Page No.: 166 of 180

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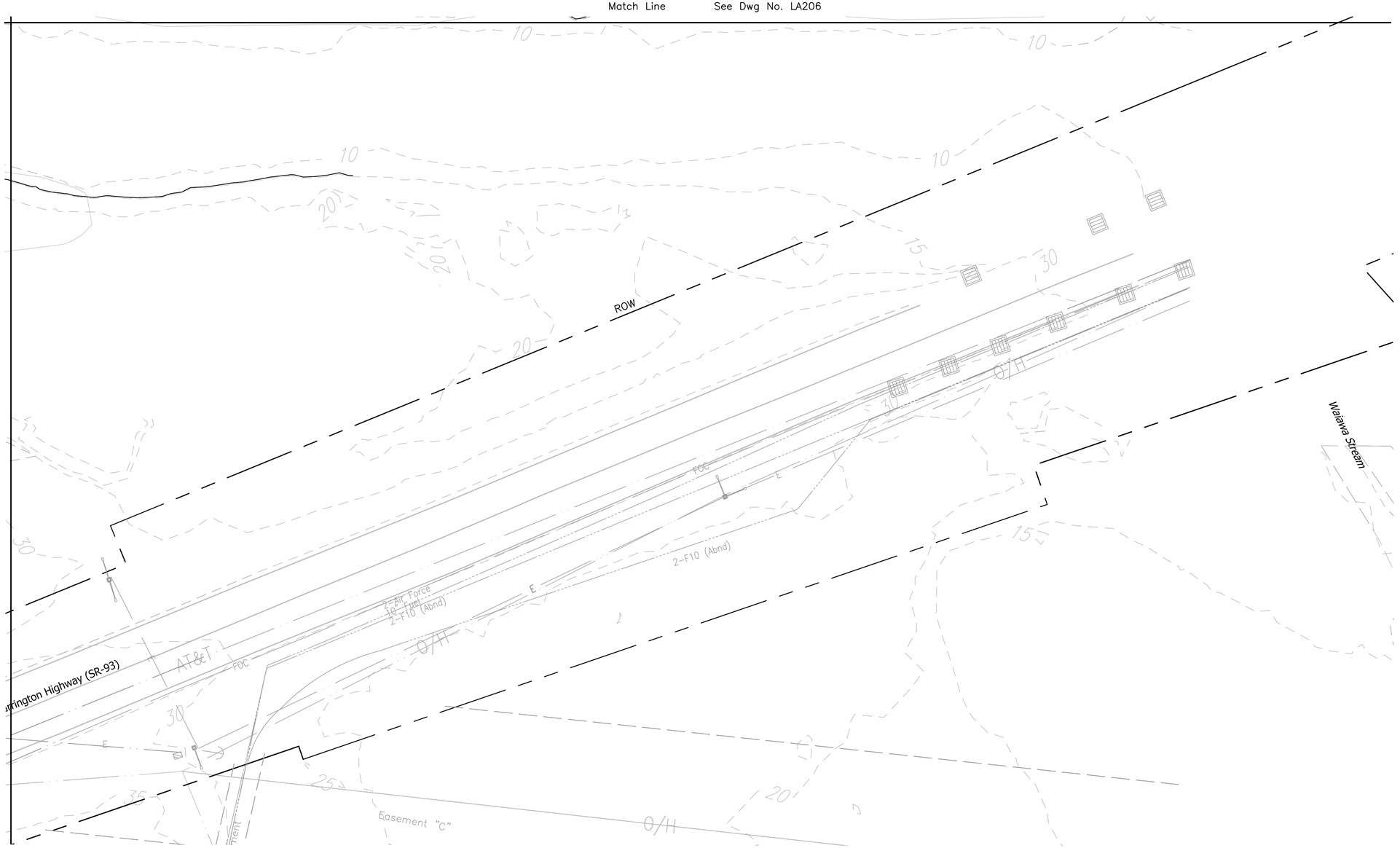
Match Line See Dwg No. LA206

Match Line See Dwg No. LA211



KEYMAP

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
- Groundcover 2: Kupukupu Fern, Peace Lily, Aglonema
- Turf: Zoysia

PLANTING NOTES:

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   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 12 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA212
Drawing No.: LA212 Rev.
Scale: 1"=20'
Page No. 167 of 180

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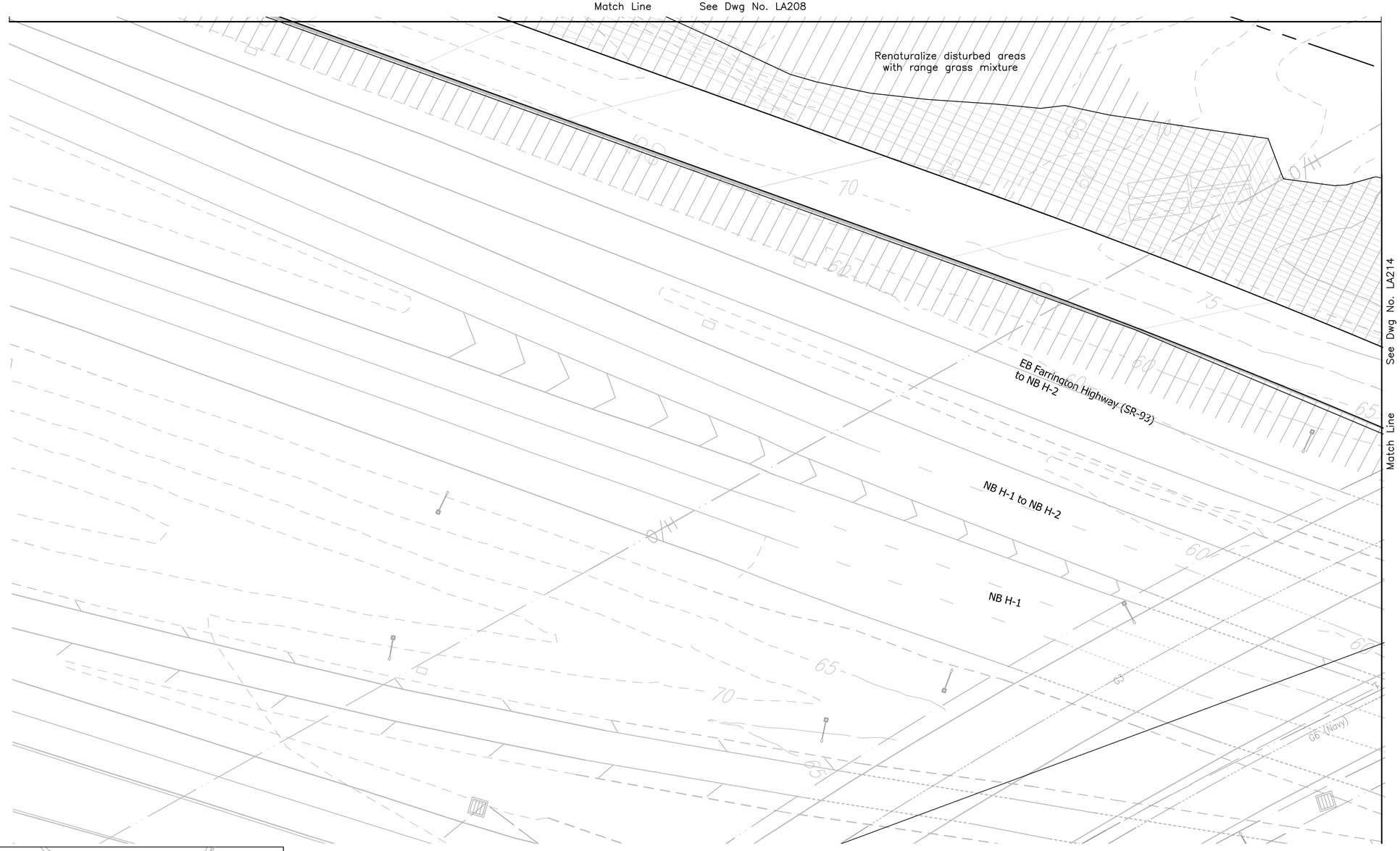

LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
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- Turf: Zoysia

PLANTING NOTES:

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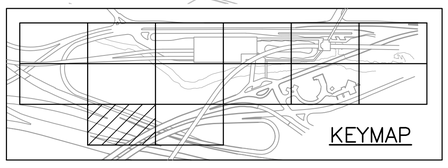

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 13 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA213
Drawing No: LA213 Rev.
Scale: 1"=20'
Page No. 168 of 180

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Match Line See Dwg No. LA209

Renaturalize disturbed areas with range grass mixture

℄ WB Track

℄ EB Track

737

736

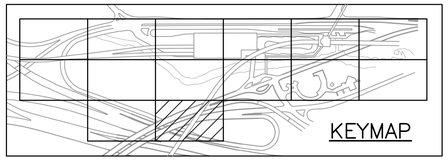
735

734

See Dwg No. LA213

Match Line

Renaturalize disturbed areas with range grass mixture



LEGEND

- Medium Tree: Rainbow Shower
- Small Tree: Hong Kong Orchid
- Medium Palm: Manila, Loulu
- Small Palm: Areca Palm
- Shrub: Yellow hibiscus
- Groundcover 1: Lantana, Ilima papa, Akia
- Groundcover 2: Kupukupu Fern, Peace Lily, Aglonema
- Turf: Zoysia

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   Use agriform tablets 20–10–5, 21 gram size.
5. Stabilize sloped areas with jute matting as needed and install per manufacturer's guidelines.

20' 0 20'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

PLANTING PLAN

SHEET 14 OF 14

Contract No.: SV–245
CADD File: SC4–J04–LA214
Drawing No: LA214 Rev.
Scale: 1"=20'
Page No. 169 of 180

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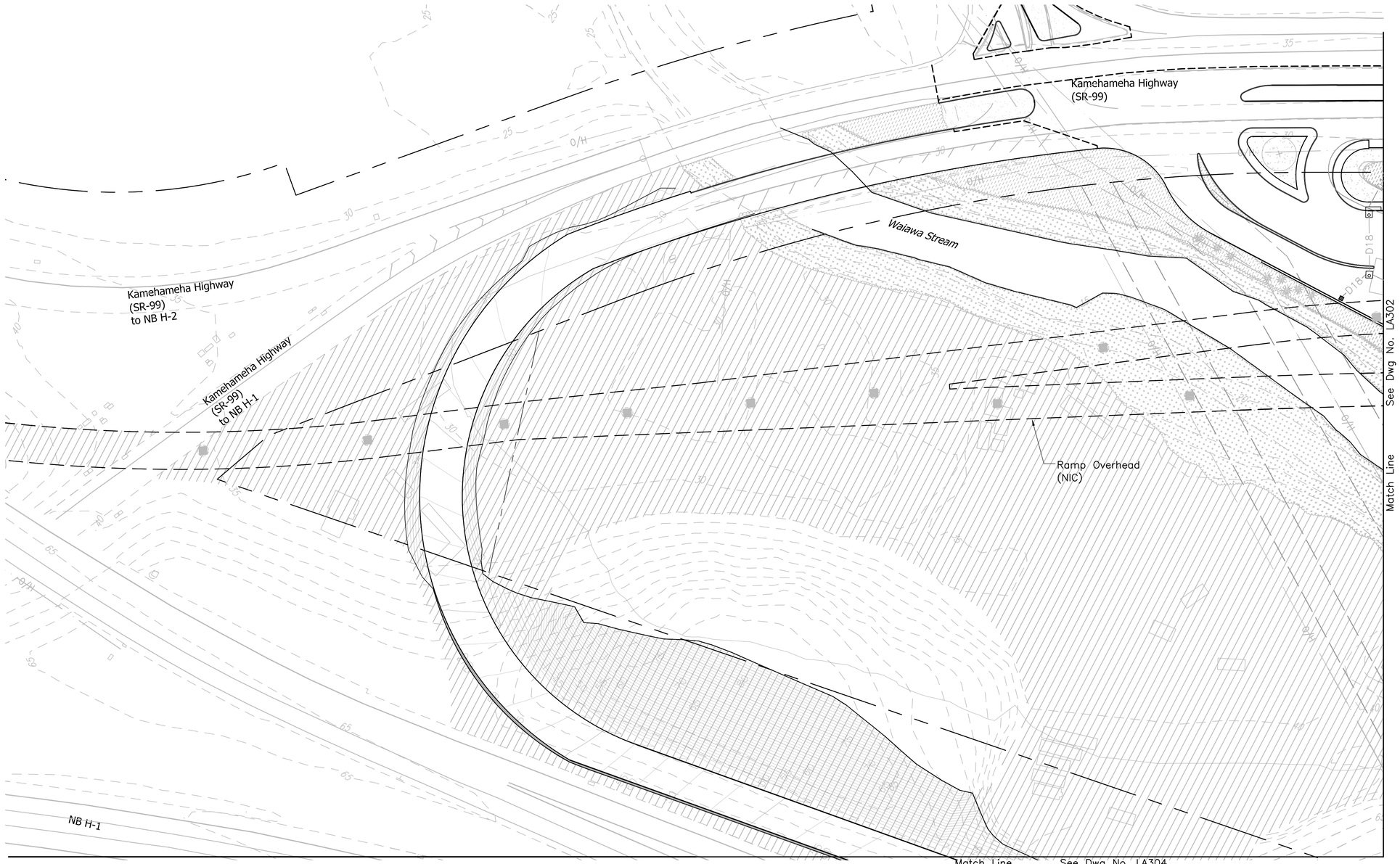

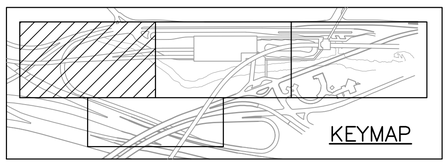

IRRIGATION LEGEND:

- Point of Connection
- Remote Control Valve
- Quick Coupling Valve
- Controller
- Main
- Sleeve
- Conduit
- Copper Pipe

IRRIGATION NOTES:

1. Preserve and protect all existing irrigation meters, backflow preventers and points of connection for reuse. Finish grades to be maintained around reused equipment.
2. Demolish and remove all existing irrigation mainline, laterals, valves, heads.
3. Install 2–wire system and controllers.
4. Connect HDPE mainline to service pipe and other non–HDPE pipe by mechanical connection. All other HDPE joints shall be heat fusion per manufacturer's recommendations.
5. All mainline and laterals shall be HDPE.
6. Sleeves and conduit pipe can be PVC.
7. Adjust heads as required to account for any vertical obstructions.
8. Provide sufficient laterals and heads for full coverage of planting area.
9. Permanently mark sleeve and conduit locations by installing detectable warning tape.
10. Provide electric handholes for irrigation control wires at a minimum 250 ft. spacing.

40' 0 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: C Hironaka
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

IRRIGATION PLAN

SHEET 1 OF 4

Contract No.: SV–245
CADD File: SC4–J05–LA301
Drawing No.: LA301 Rev.
Scale: 1"=40'
Page No. 170 of 180

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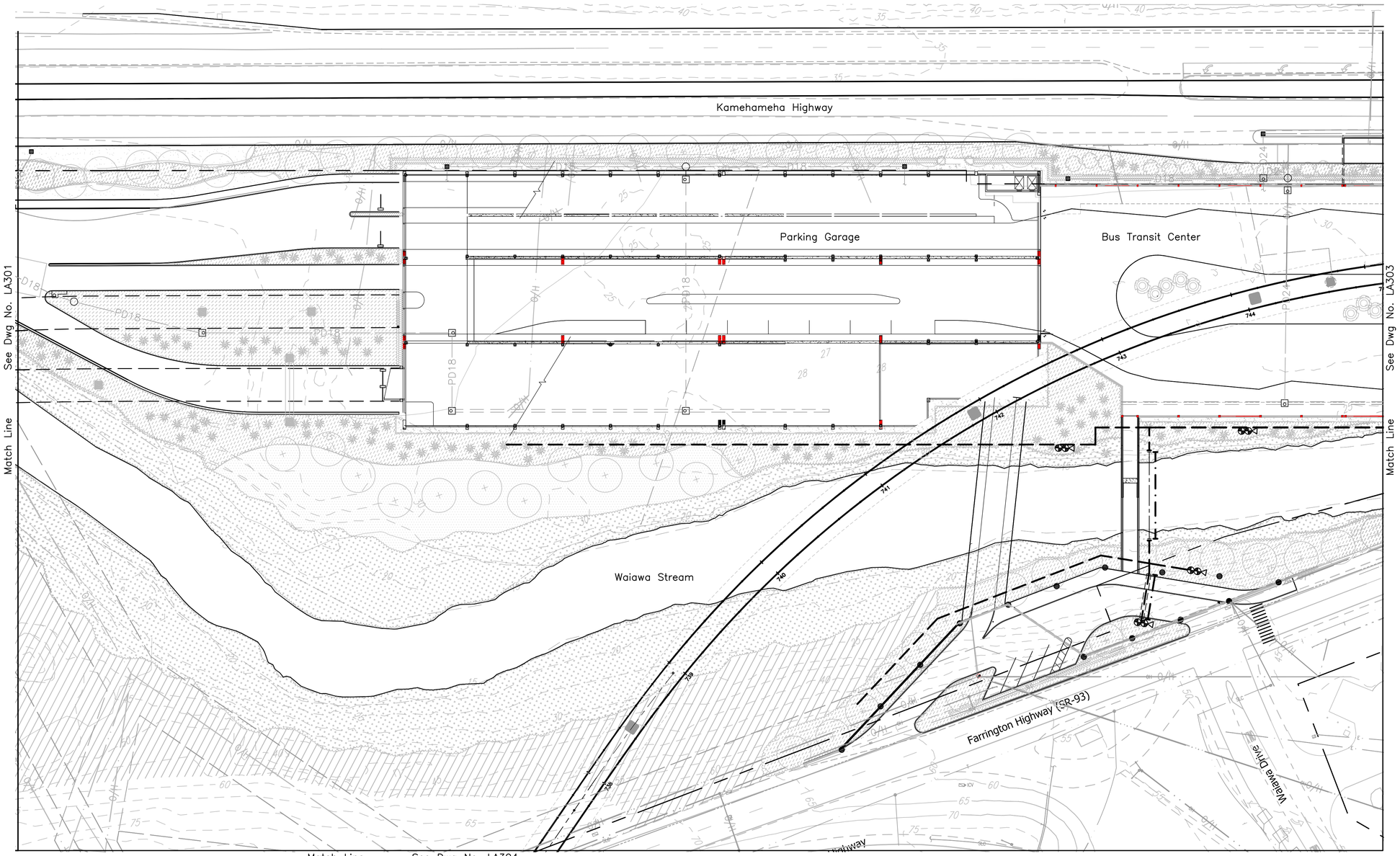

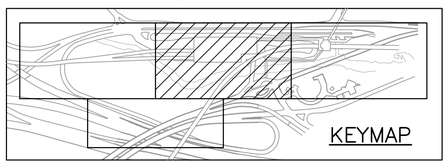

IRRIGATION LEGEND:

- Point of Connection
- Remote Control Valve
- Quick Coupling Valve
- Controller
- Main
- Sleeve
- Conduit
- Copper Pipe

IRRIGATION NOTES:

1. Preserve and protect all existing irrigation meters, backflow preventers and points of connection for reuse. Finish grades to be maintained around reused equipment.
2. Demolish and remove all existing irrigation mainline, laterals, valves, heads.
3. Install 2–wire system and controllers.
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5. All mainline and laterals shall be HDPE.
6. Sleeves and conduit pipe can be PVC.
7. Adjust heads as required to account for any vertical obstructions.
8. Provide sufficient laterals and heads for full coverage of planting area.
9. Permanently mark sleeve and conduit locations by installing detectable warning tape.
10. Provide electric handholes for irrigation control wires at a minimum 250 ft. spacing.

40' 0 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: C Hironaka
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

IRRIGATION PLAN

SHEET 2 OF 4

Contract No.: SV–245
CADD File: SC4–J05–LA302
Drawing No.: LA302 Rev.
Scale: 1"=40'
Page No. 171 of 180

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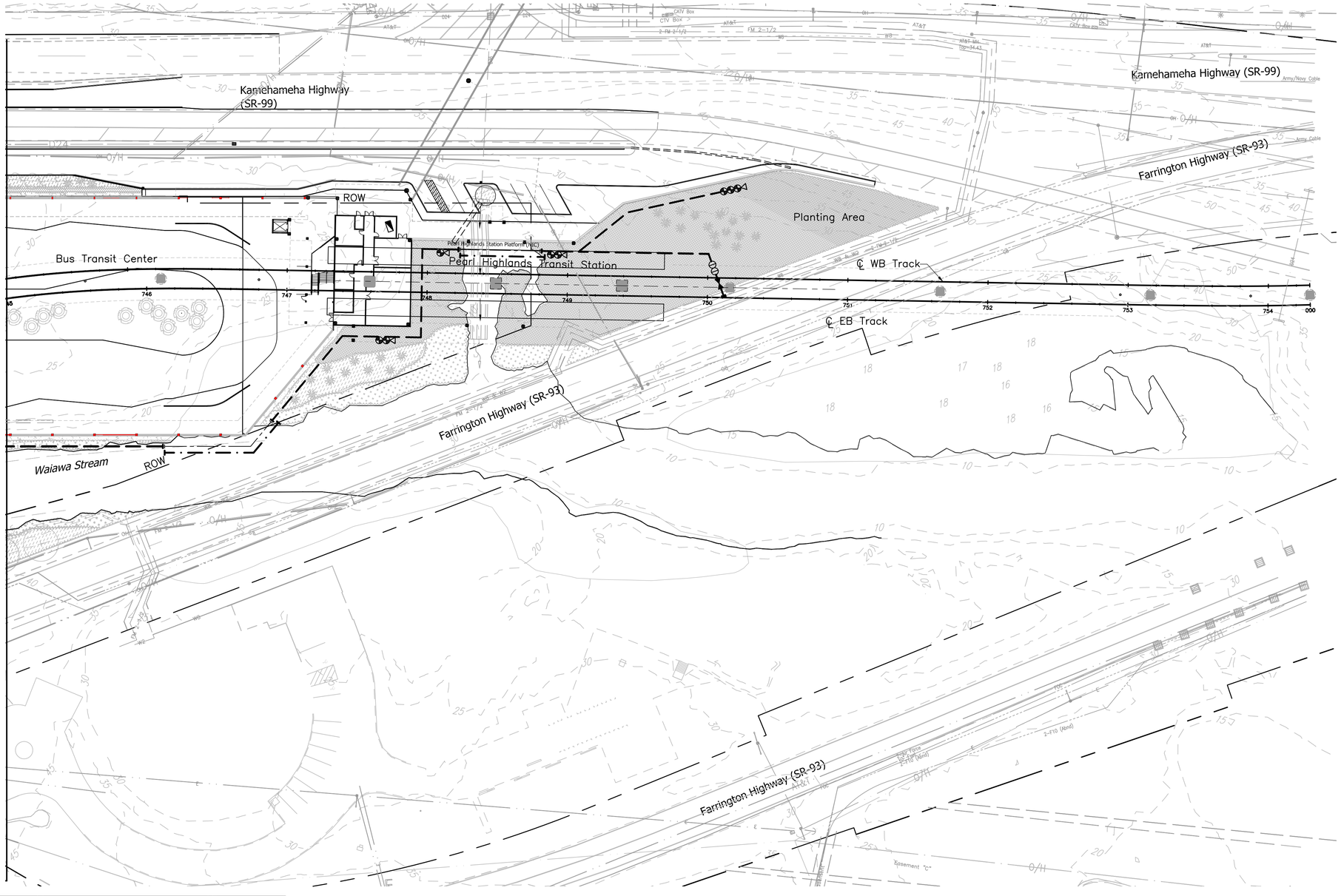

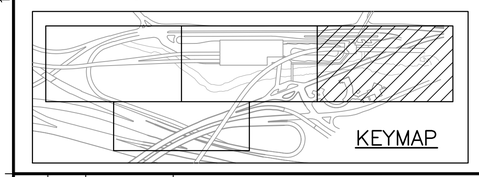

IRRIGATION LEGEND:

- Point of Connection
- Remote Control Valve
- Quick Coupling Valve
- Controller
- Main
- Sleeve
- Conduit
- Copper Pipe

IRRIGATION NOTES:

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8. Provide sufficient laterals and heads for full coverage of planting area.
9. Permanently mark sleeve and conduit locations by installing detectable warning tape.
10. Provide electric handholes for irrigation control wires at a minimum 250 ft. spacing.

40' 0 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: C Hironaka
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: BELTCOLLINS
PLANNING • CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL CONSULTING
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
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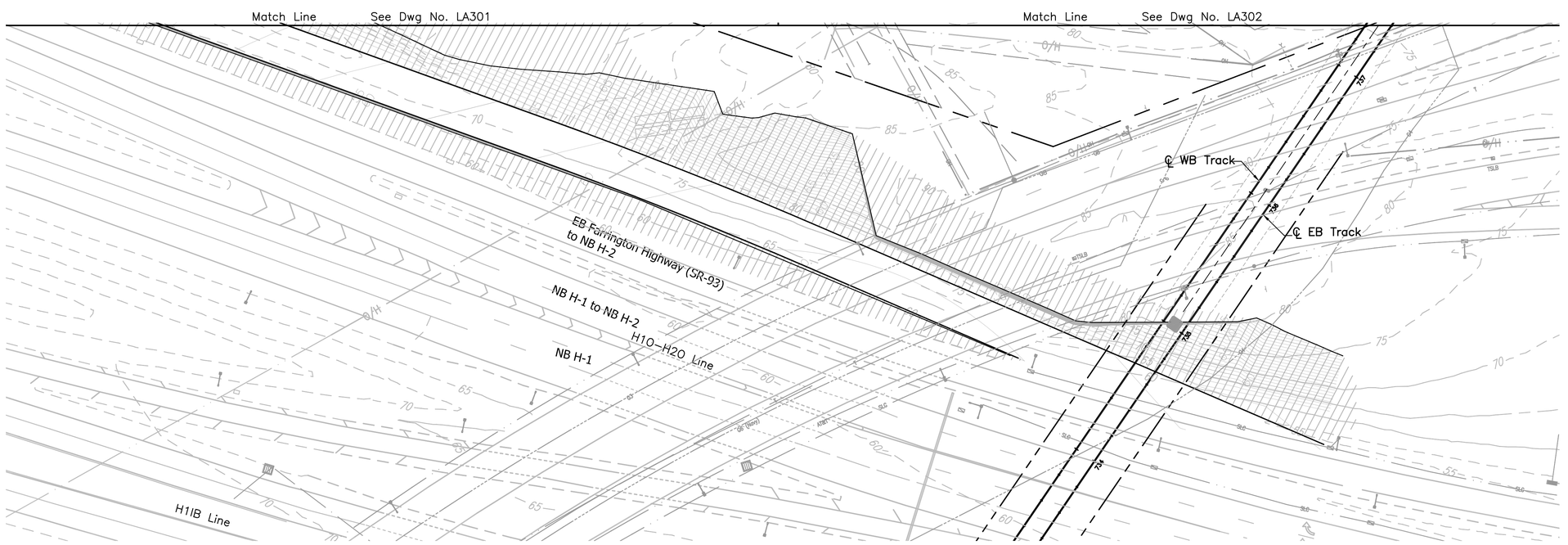
PEARL HIGHLANDS STATION

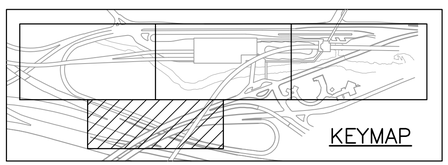
IRRIGATION PLAN

SHEET 3 OF 4

Contract No.: SV–245
CADD File: SC4–J05–LA303
Drawing No: LA303 Rev.
Scale: 1"=40'
Page No. 172 of 180

2009–09–10 6:20 PM L:\2008710100_HHCTCP\CAD\Blocks\Stations\SC4–Landscape–Sheets.dwg





IRRIGATION LEGEND:

- Point of Connection
- Remote Control Valve
- Quick Coupling Valve
- Controller
- Main
- Sleeve
- Conduit
- Copper Pipe

IRRIGATION NOTES:

1. Preserve and protect all existing irrigation meters, backflow preventers and points of connection for reuse. Finish grades to be maintained around reused equipment.
2. Demolish and remove all existing irrigation mainline, laterals, valves, heads.
3. Install 2–wire system and controllers.
4. Connect HDPE mainline to service pipe and other non–HDPE pipe by mechanical connection. All other HDPE joints shall be heat fusion per manufacturer's recommendations.
5. All mainline and laterals shall be HDPE.
6. Sleeves and conduit pipe can be PVC.
7. Adjust heads as required to account for any vertical obstructions.
8. Provide sufficient laterals and heads for full coverage of planting area.
9. Permanently mark sleeve and conduit locations by installing detectable warning tape.
10. Provide electric handholes for irrigation control wires at a minimum 250 ft. spacing.

40' 0 40'

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: C Hironaka
Drawn: L Keliiaa
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

IRRIGATION PLAN

SHEET 4 OF 4

Contract No.: SV–245
CADD File: SC4–J05–LA304
Drawing No.: LA304 Rev.
Scale: 1"=40'
Page No. 173 of 180

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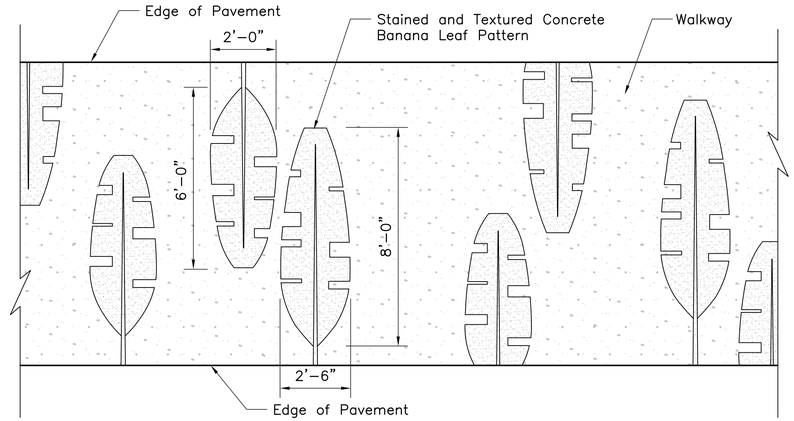

BANANA LEAF PAVING PATTERN CONCEPT (1)
NOT TO SCALE — LA104

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: A Akau
Drawn: B Tanimura
Checked: D Easterday
Approved: A Kutsunai
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

PAVING DETAILS

Contract No.: SV–245
CADD File: SC4–J06–LA401
Drawing No: LA401 | Rev.
Scale: AS SHOWN
Page No. 174 of 180

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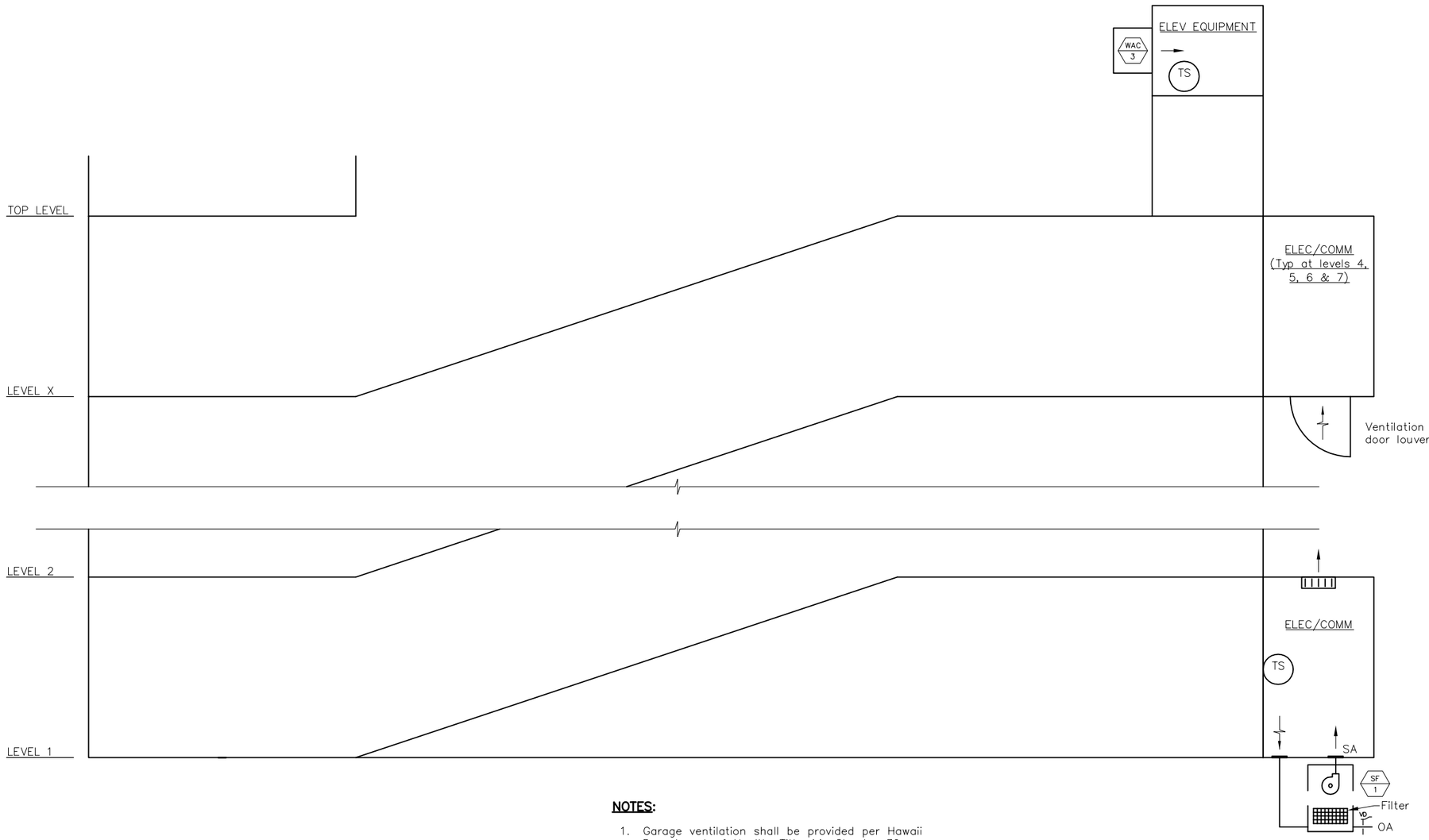

NOTES:

1. Garage ventilation shall be provided per Hawaii Department of Health, Title 11, Chapter 39.
2. Each story or level shall be mechanically ventilated at 1.5 CFM per square foot unless each of the following are met:

   A. More than half of the exterior wall area is open.
   B. There are no employees stationed within the parking structure.
   C. There is no unusual or irregular shape of the structure such that a majority of the parking area would not receive natural ventilation.

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: K Machida
Drawn: C Nakagawa
Checked: D Niino
Approved: K.J. Harris
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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512 KALIHI ST. HONOLULU, HAWAII 96819

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PEARL HIGHLANDS STATION

PARKING DECK - HVAC

Contract No.: SV-245
CADD File: SC4D-K03-ME001
Drawing No.: ME001 Rev.
Scale: NTS
Page No.: 175 of 180

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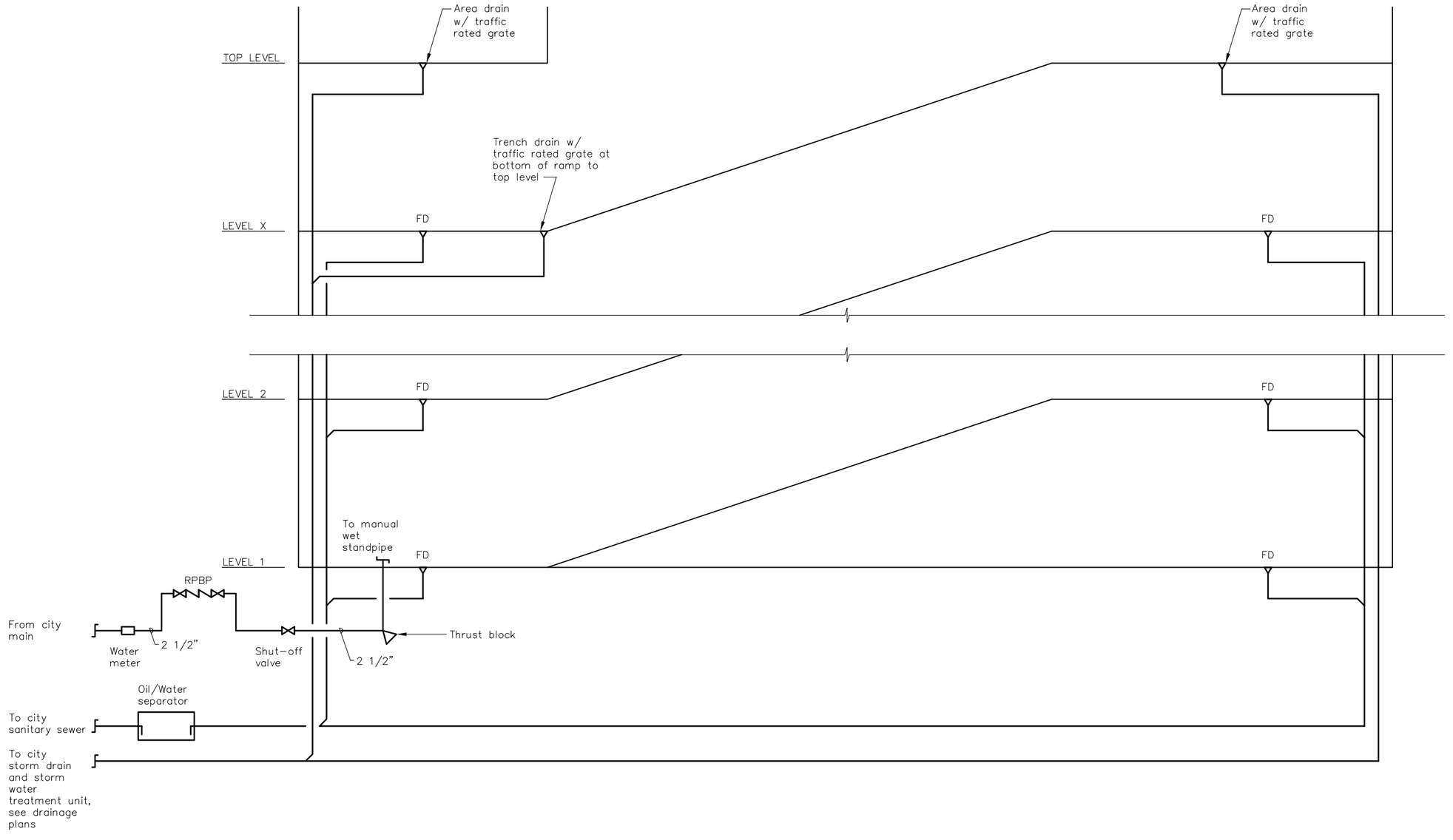

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: K Machida
Drawn: C Nakagawa
Checked: D Niino
Approved: K.J. Harris
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

PARKING DECK - PLUMBING AND DRAINAGE

Contract No.: SV-245
CADD File: SC4D-K05-ME002
Drawing No: ME002 Rev.
Scale: NTS
Page No. 176 of 180

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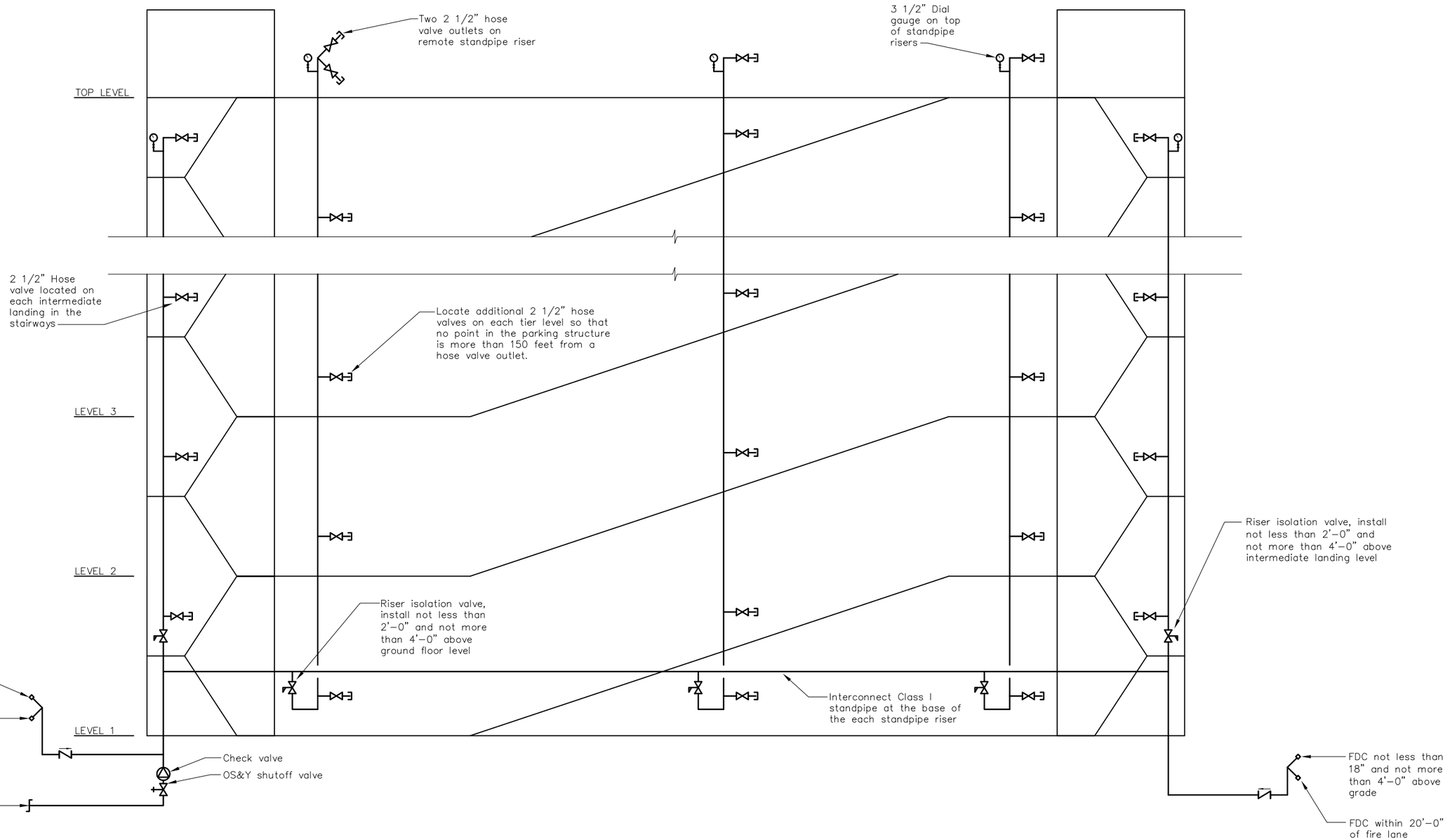

PARKING STRUCTURE STANDPIPE SCHEMATIC

NTS

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: M Harano
Drawn: C Nakagawa
Checked: K Machida
Approved: K.J. Harris
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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PEARL HIGHLANDS STATION

PARKING DECK - FIRE PROTECTION

Contract No.: SV–245
CADD File: SC4D–K07–ME003
Drawing No: ME003 Rev.
Scale: NTS
Page No. 177 of 180

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GENERAL ELECTRICAL NOTES

1. These drawings are accompanied by Design Criteria and Specifications.
2. See Directive Drawings for typical electrical requirements related to Passenger station work.

ELECTRICAL SYMBOLS

SECTIONS

CONDUCTORS AND CONDUIT

DESCRIPTION	SYMBOL
Transformer	
Normally Open contact, Auxiliary or Relay	
Ground Connection	
Motor	
Disconnect Switch	

ELECTRICAL ABBREVIATIONS

A	Ampere
EMB	External Maintenance Bypass
OCC	Operations Control Center
SCADA	Supervisory Control and Data Acquisition
TCC	Train Control and Communications
Typ	Typical
UPS	Uninterruptible Power Supply
V	Volt
W	Watt

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: R Roseman
Drawn: J Mohapp
Checked: M Palavric
Approved: K Harris
Date: 09-11-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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PEARL HIGHLANDS STATION

GENERAL ELECTRICAL NOTES, SYMBOLS, AND ABBREVIATIONS

Contract No.: SV-245
CADD File: SC4-L01-EG001
Drawing No: EG001 Rev.
Scale: N/A
Page No. 178 of 180

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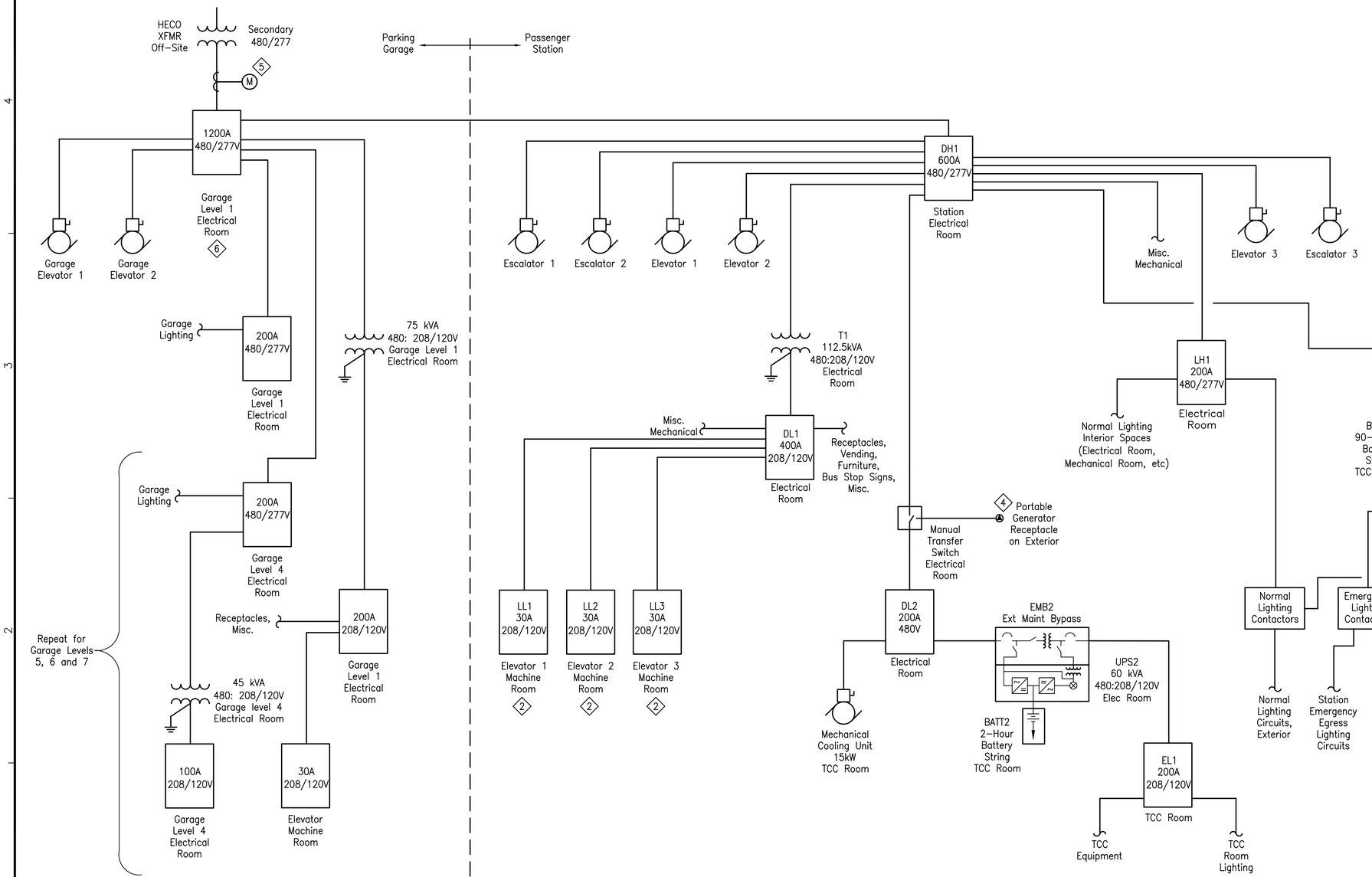

STATION ONE–LINE DIAGRAM (1 / ED002)

GENERAL NOTES:

1.

2. ...e complete electrical distribution system for loads indicated and not indicated on this sheet.

3. See Drawing ED008 for typical equipment layout in Passenger Station Electrical Room.

1. UL–924 listed UPS/battery system.

   Provide panel for code–required branch circuits in pit, machine room, and car.

   Extend to safety walk lighting circuits at junction box on guidewayand connect.

4. Locate generator receptacle at exterior location accessible to maintenance vehicle parking.

5. See utility drawings for service an l

6.

SCADA POINTS	
Description	Alarm/Control
Loss of Utility Power	Alarm
UPS1 on Battery	Alarm
UPS1 Alarm	Alarm
UPS2 on Battery	Alarm
UPS2 Alarm	Alarm
Guideway Safety Walk Lighting ON/OFF, East Circuits	Control
Guideway Safety Walk Lighting ON/OFF, West Circuits	Control

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: R Roseman
Drawn: J Mohapp
Checked: M Palavric
Approved: K Harris
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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Subconsultant:

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PEARL HIGHLANDS STATION

ONE-LINE DIAGRAM

Contract No.: SV–245
CADD File: SC4–L03–EL001
Drawing No: EL001 Rev.
Scale: N/A
Page No. 179 of 180

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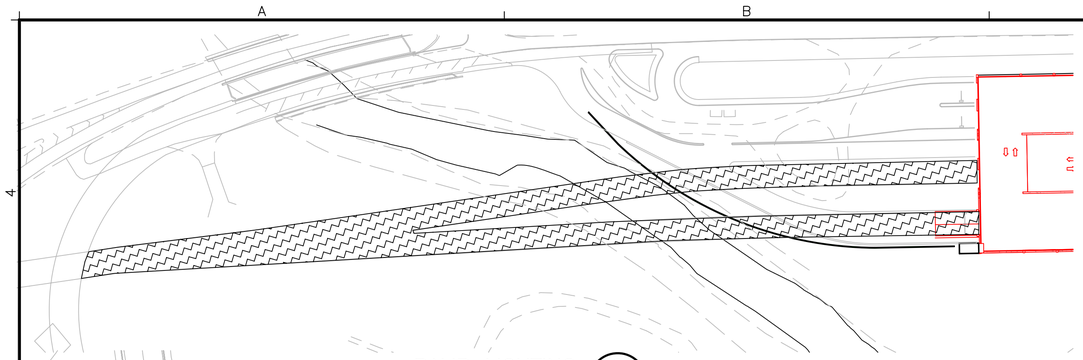


RAMP LIGHTING 2 / ED002

GENERAL NOTES:

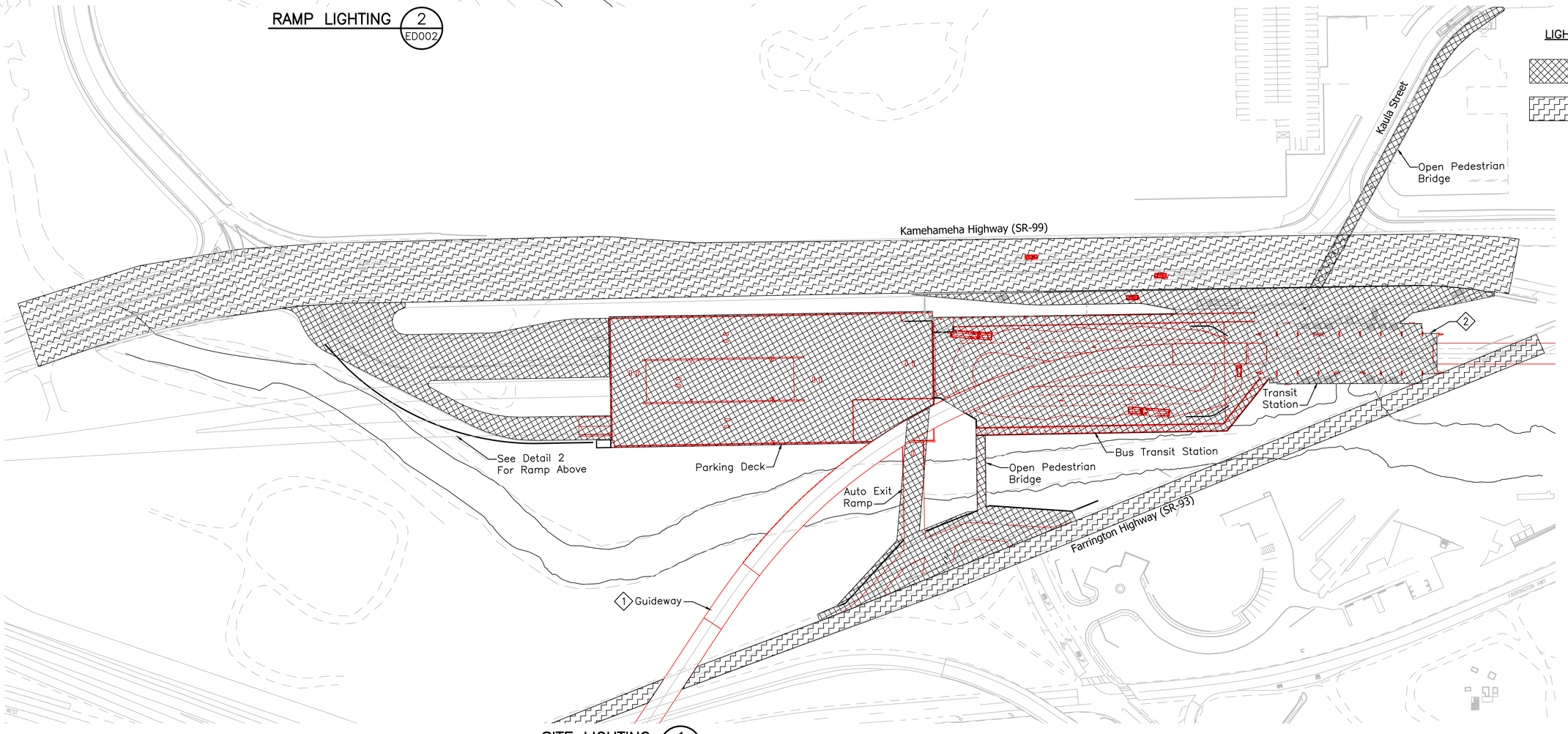
1. Reference design criteria "Chapter 20 – Facilities Electrical Requirements" for illumination requirements.

KEYED NOTES:

1. Guideway Lighting not in this contract.
2. See Directive Drawings for Passenger Station Platform Lighting.

LIGHTING LEGEND

- Provide Lighting
- Lighting by Others



SITE LIGHTING 1 / ED002

Rev	By	Date	Description

PRELIMINARY ENGINEERING SUBJECT TO REVISION

Designed: J Mohapp
Drawn: J Mohapp
Checked: R Roseman
Approved: K Harris
Date: 09–11–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
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Subconsultant:

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PEARL HIGHLANDS STATION

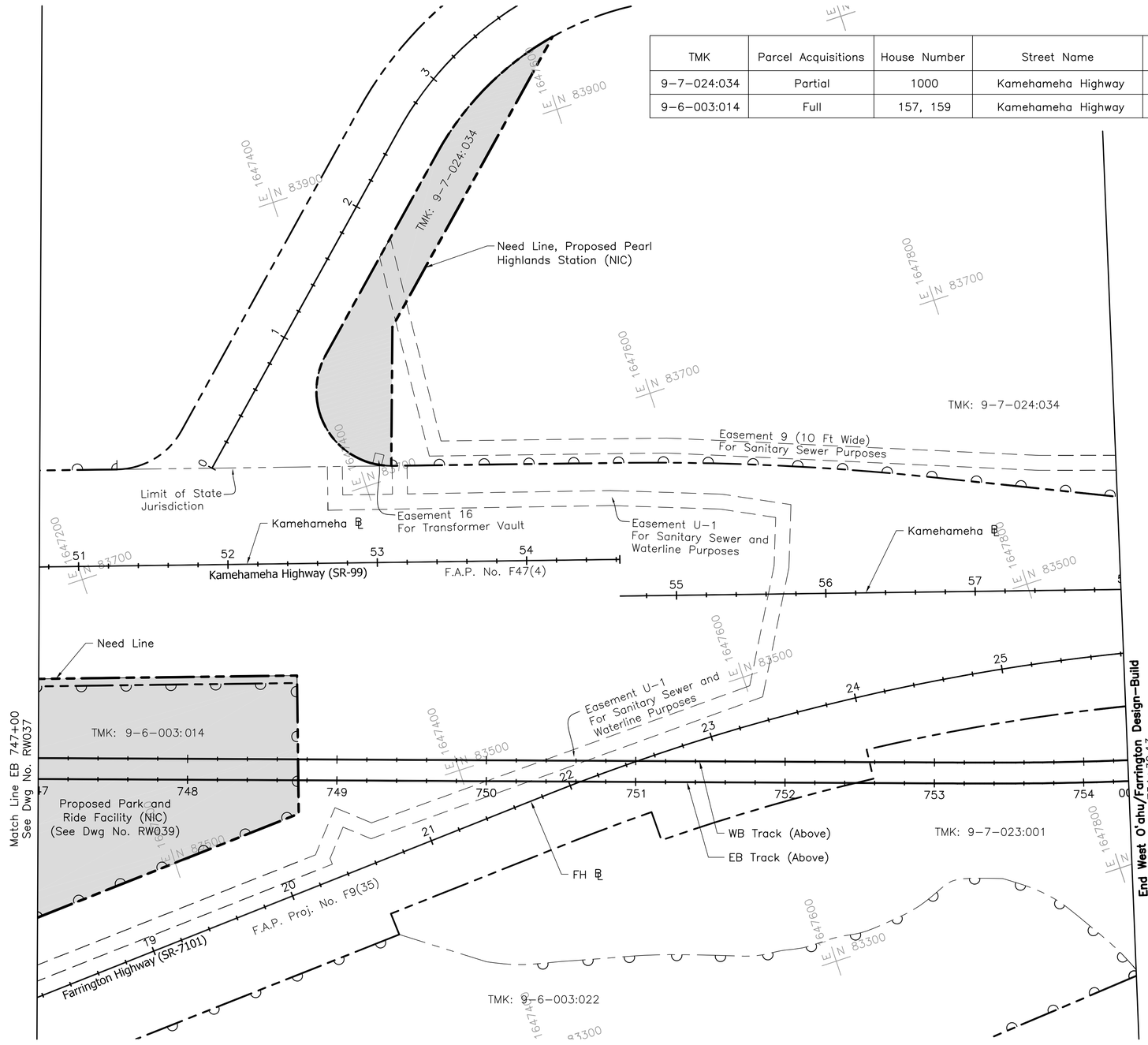
SITE LIGHTING PLAN

Contract No.: SV–245
CADD File: SC4–L05–EL002
Drawing No: EL002 Rev.
Scale: 1"=80'
Page No. 180 of 180

PEARL HIGHLANDS STATION & PARKING STRUCTURE DESIGN

APPENDIX A - INFORMATIVE DRAWINGS

TMK	Parcel Acquisitions	House Number	Street Name	Land Use
9-7-024:034	Partial	1000	Kamehameha Highway	Commercial
9-6-003:014	Full	157, 159	Kamehameha Highway	Residential



NOTES:

1. ROW acquisition may be in the form of an aerial easement; an easement allowing joint use; subdivision of property with transfer of title; transfer of title for the entire parcel; or some other form to be documented by Land Court registration.
2. Construction easements are the responsibility of the Design-Build Contractor and should be defined during the final design phase and are not reflected on plans.
3. See Dwg No. CG001 for general civil notes, legend and abbreviations.
4. See Dwg No. RW001 for Right-of-Way notes and legend.

40' 0 40'

Rev	By	Date	Description
A	AB	04-03-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: L Karamatsu
Drawn: A Viterbo
Checked: K Wong
Approved: A Borst
Date: 04-03-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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Subconsultant:

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WEST O`AHU / FARRINGTON DESIGN-BUILD

EXISTING RIGHT-OF-WAY & PROPOSED ACQUISITION TABULATIONS

EB 747+00 TO EB 754+30.13

Contract No.: DB-1200
CADD File: WF-B04-RW038
Drawing No.: RW038 Rev. A
Scale: 1"=40'
Page No. 62 of 312

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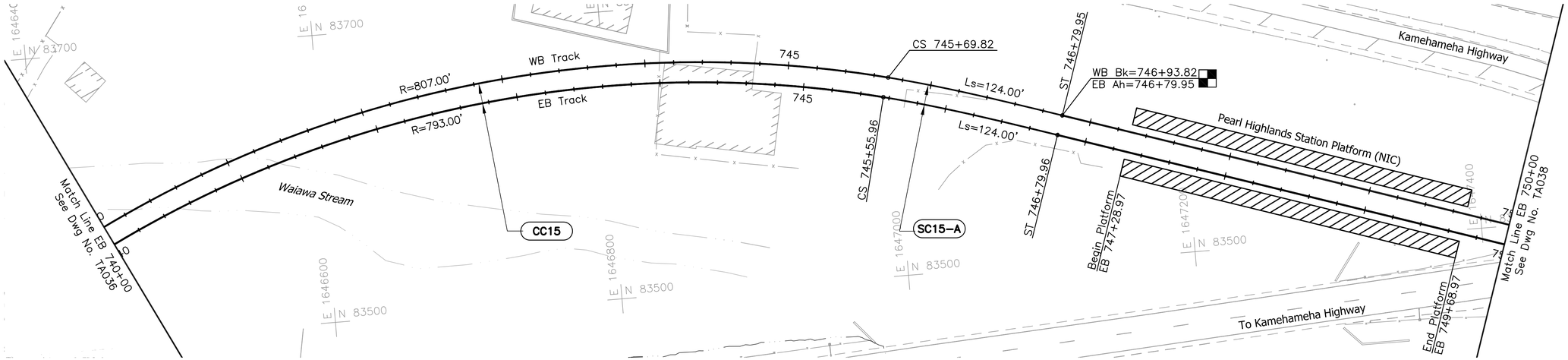
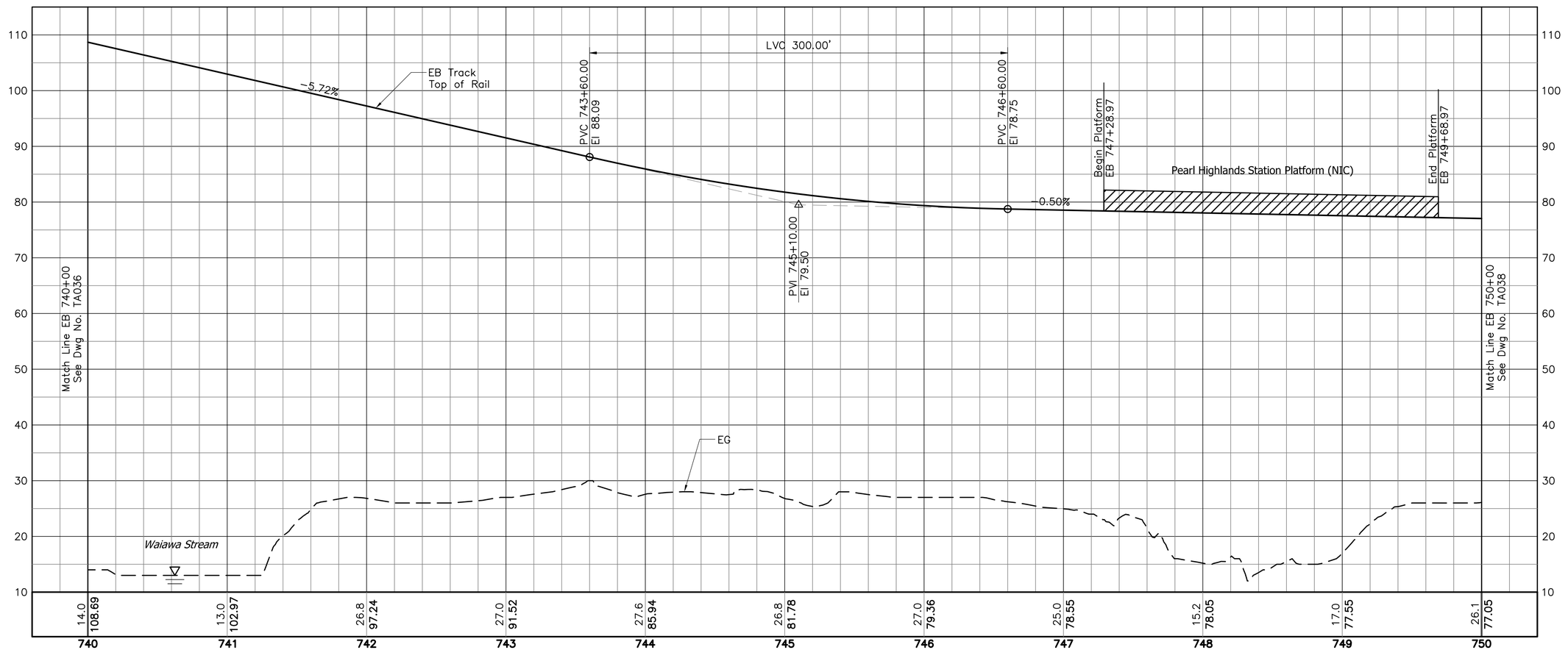


NOTES:

1. For general notes, symbols, and abbreviations, see Dwg No. CG001.
2. For track alignment abbreviations, see Dwg No. CG002.
3. For Station information, refer to Structural Plans.



Rev	By	Date	Description
A	AB	04-03-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: M Hall
Drawn: R Nacion
Checked: E Liberman
Approved: A Borst
Date: 04-03-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

TRACK ALIGNMENT
PLAN & PROFILE

EB 740+00 TO EB 750+00

Contract No.: DB-1200
CADD File: WF-B05-TA037
Drawing No.: TA037 Rev. A
Scale: 1"=40' H, 1"=10' V
Page No. 100 of 312

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ALIGNMENT: SEG C – EB Track

Curve No	Curve Element	Type	Station	Northing	Easting	Data
No. 10 Xover		PS	732+25.82	83102.320	1645832.923	
		PITO	732+57.23	83121.775	1645857.591	
No. 10 Xover		PITO	733+96.89	83208.256	1645967.244	
		PS	734+28.30	83227.711	1645991.913	
		TS:	737+71.28	83440.099	1646261.212	Ls = 124.00'
	SC15–B					Ts = 490.26'
						Θs = 04° 28' 46.63"
		SC:	738+95.28	83514.304	1646360.516	I = 56° 41' 41.74"
	V=30 mph					R = 793.00'
CC15	Ea=2.00"	PI:	–	83743.694	1646646.157	Lc = 660.68'
	Eu=2.49"					Δ = 47° 44' 08.48"
		CS:	745+55.96	83624.796	1646992.673	Dc = 07° 13' 30.69"
	SC15–A					
		ST:	746+79.96	83588.676	1647111.261	
Pearl Highlands Station			747+28.97	–	–	
			749+68.97	–	–	
						L = 614.53'
						Di = 288° 25' 59.24"
		TS:	752+94.49	83394.363	1647694.260	Ls = 93.00'
	SD1–B					Ts = 248.51'
						Θs = 01° 19' 38.93"
		SC:	753+87.49	83365.640	1647782.711	I = 11° 29' 39.99"
	V=40 mph					R = 2007.00'
CD1	Ea=1.50"	PI:	–	83315.784	1647930.023	Lc = 309.64'
	Eu=1.66"					Δ = 08° 50' 22.13"
		CS:	772+66.99	83297.709	1648084.489	Dc = 02° 51' 17.27"
	SD1–A					
		ST:	773+59.99	83285.762	1648176.716	

ALIGNMENT: SEG C – WB Track

Curve No	Curve Element	Type	Station	Northing	Easting	Data
						L = 590.47'
						Di = 231° 44' 17.50"
No. 10 Xover		PS	732+25.82	83113.313	1645824.253	
		PITO	732+57.23	83132.768	1645848.921	
No. 10 Xover		PITO	733+96.89	83219.248	1645958.575	
		PS	734+28.30	83238.703	1645983.243	
CC15		TS:	737+71.28	83451.096	1646252.548	Ls = 124.00'
	SC15–B					Ts = 497.80'
						Θs = 04° 24' 06.86"
		SC:	738+95.28	83525.346	1646351.820	I = 56° 41' 41.74"
	V=30 mph					R = 807.00'
	Ea=2.00"	PI:	–	83759.364	1646643.418	Lc = 674.54'
	Eu=2.42"					Δ = 47° 53' 28.01"
		CS:	745+69.82	83638.134	1646997.109	Dc = 07° 05' 59.46"
	SC15–A					
		ST:	746+79.95	83601.960	1647115.681	
Pearl Highlands Station			747+28.97	–	–	
			749+68.97	–	–	
						L = 614.54'
						Di = 288° 25' 59.24"
		TS:	752+94.49	83407.645	1647698.687	Ls = 93.00'
	SD1–B					Ts = 247.10'
						Θs = 01° 20' 12.50"
		SC:	753+87.49	83378.926	1647787.140	I = 11° 29' 39.99"
	V=40 mph					R = 1993.00'
CD1	Ea=1.50"	PI:	–	83329.511	1647933.113	Lc = 306.83'
	Eu=1.68"					Δ = 08° 49' 14.99"
		CS:	772+64.81	83311.612	1648086.181	Dc = 02° 52' 29.46"
	SD1–A					
		ST:	773+57.81	83299.659	1648178.408	

ALIGNMENT: WEST YARD LEAD TRACK

Curve No	Curve Element	Type	Station *	Northing	Easting	Data
No. 10 Turnout		PS:	0+00.00	81478.684	1642945.095	L = 31.42'
						Di = 227° 45' 34.10"
		PITO:	0+31.42	81499.804	1642968.354	L = 117.11'
						Di = 233° 29' 03.10"
		PC:	1+48.52	81569.487	1643062.471	I = 04° 28' 16.54"
						R = 500.00'
C1		PI:	–	81581.102	1643078.158	Lc = 39.02'
						Δ = 04° 28' 16.54"
		PT:	1+87.54	81593.904	1643092.893	Dc = 11° 27' 32.96"

* Stationing shown is for West Yard Lead Track only

Rev	By	Date	Description
A	AB	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: M Hall
Drawn: R Nacion
Checked: E Liberman
Approved: A Borst
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

WEST O'AHU/FARRINGTON DESIGN-BUILD

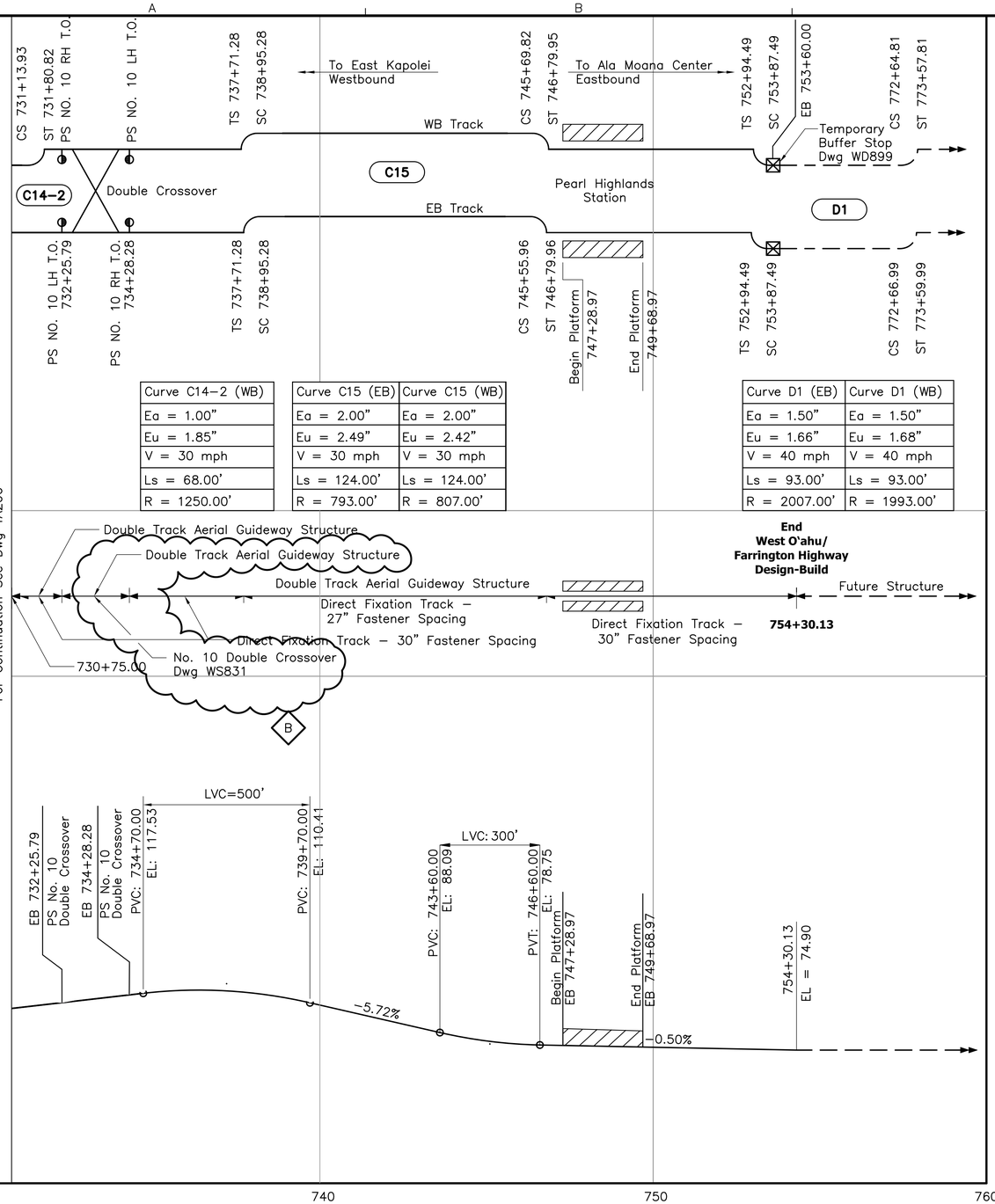
TRACK ALIGNMENT DATA

SHEET 8 OF 8

Contract No.: DB–1200
CADD File: WF–B06–TA108
Drawing No.: TA108 Rev. A
Scale: N/A
Page No. 110 of 312

2009–03–27 11:18 AM K:\CADD\03 Civil\Control Points\WF–B06_TRCK–data.dwg

ALIGNMENT DATA



Curve C14–2 (WB)
Ea = 1.00"
Eu = 1.85"
V = 30 mph
Ls = 68.00'
R = 1250.00'

Curve C15 (EB)	Curve C15 (WB)
Ea = 2.00"	Ea = 2.00"
Eu = 2.49"	Eu = 2.42"
V = 30 mph	V = 30 mph
Ls = 124.00'	Ls = 124.00'
R = 793.00'	R = 807.00'

Curve D1 (EB)	Curve D1 (WB)
Ea = 1.50"	Ea = 1.50"
Eu = 1.66"	Eu = 1.68"
V = 40 mph	V = 40 mph
Ls = 93.00'	Ls = 93.00'
R = 2007.00'	R = 1993.00'

TYPICAL SECTION

PROFILE

200' 0 200'

Rev	By	Date	Description
B	EL	05–22–09	Revised Special Trackwork Reference
A	MH	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: E Liberman
Drawn: J Derosier
Checked: B Wardell
Approved: M Hall
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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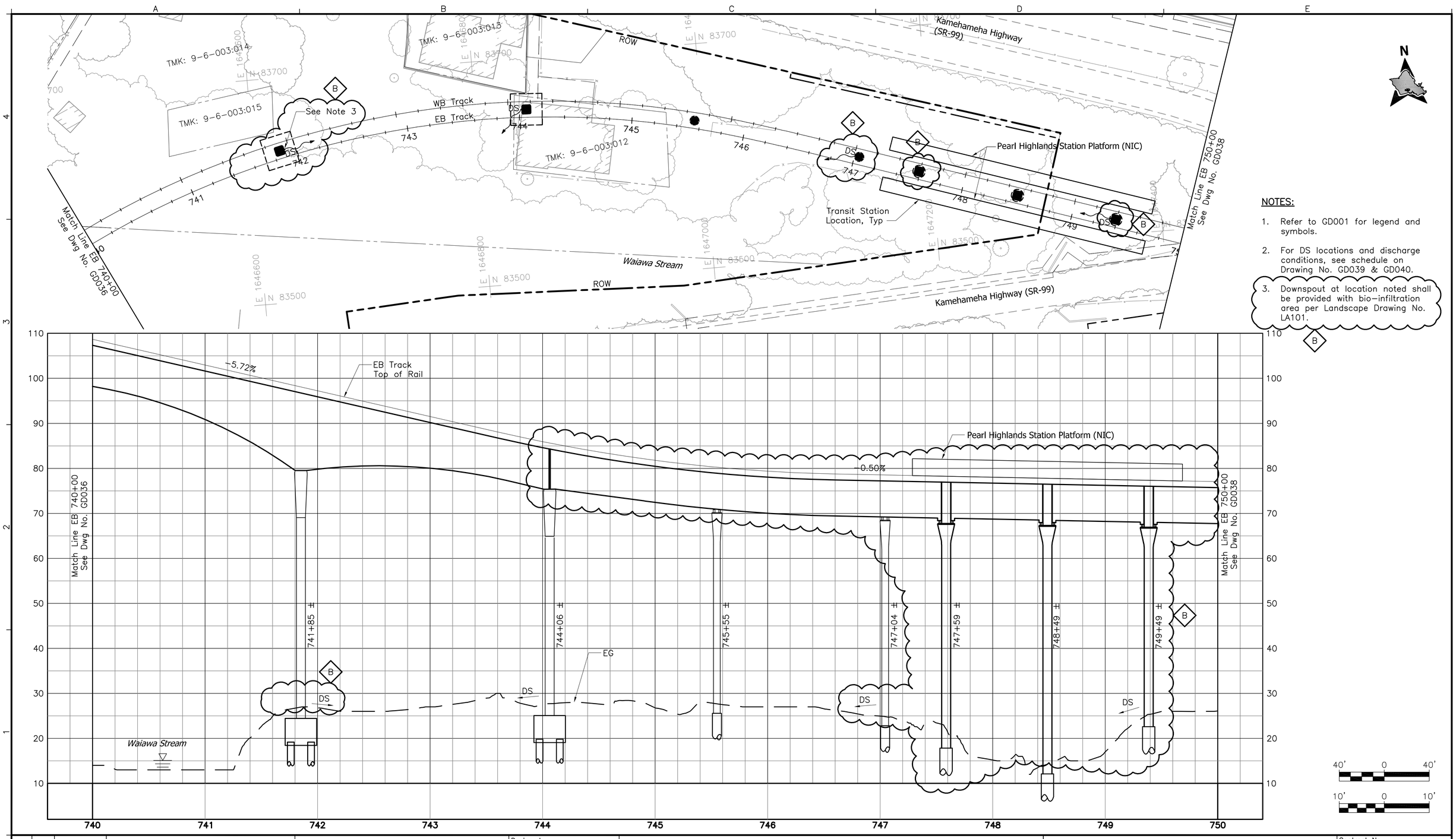
WEST O'AHU/FARRINGTON DESIGN-BUILD

TRACK CHARTS

SHEET 7 OF 7

Contract No.: DB–1200
CADD File: WF–B07–TA207
Drawing No: TA207 Rev. B
Scale: 1"=200'
Page No. 117 of 312

2009–05–13 1:13 PM K:\CADD\03 Civil\Segment C\Sheet Files\WF–B07_track charts.dwg



Rev	By	Date	Description
B	MY	05-22-09	Miscellaneous Updates
A	MY	04-03-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: E Leung
Drawn: D Chua
Checked: N Orense
Approved: M Yonamine
Date: 04-03-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: LYON ASSOCIATES
CIVIL ENGINEERING / CONSTRUCTION MANAGEMENT
841 Bishop Street, Suite 2006
Honolulu, HI 96813 USA
Voice: (808) 536-6621
Fax: (808) 523-1738
E-mail: adminhi@lyonassociates.com
www.lyonassociates.com

For reduced prints, original page size in inches: 0 1 2 3 4

WEST O'AHU/FARRINGTON DESIGN-BUILD

GUIDEWAY DRAINAGE LAYOUT PLAN

EB 740+00 TO EB 750+00

Contract No.: DB-1200
CADD File: WF-B16-GD037
Drawing No.: GD037 Rev.: B
Scale: 1"=40' H, 1"=10' V
Page No.: 206 of 312

NOTE:

1. For general notes, See Dwg No. TG001.

Rev	By	Date	Description
B	AB	05-22-09	Removed Alternative Route
A	AB	04-03-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: B Wardell
Drawn: J Derosier
Checked: M Jewell
Approved: A Borst
Date: 04-03-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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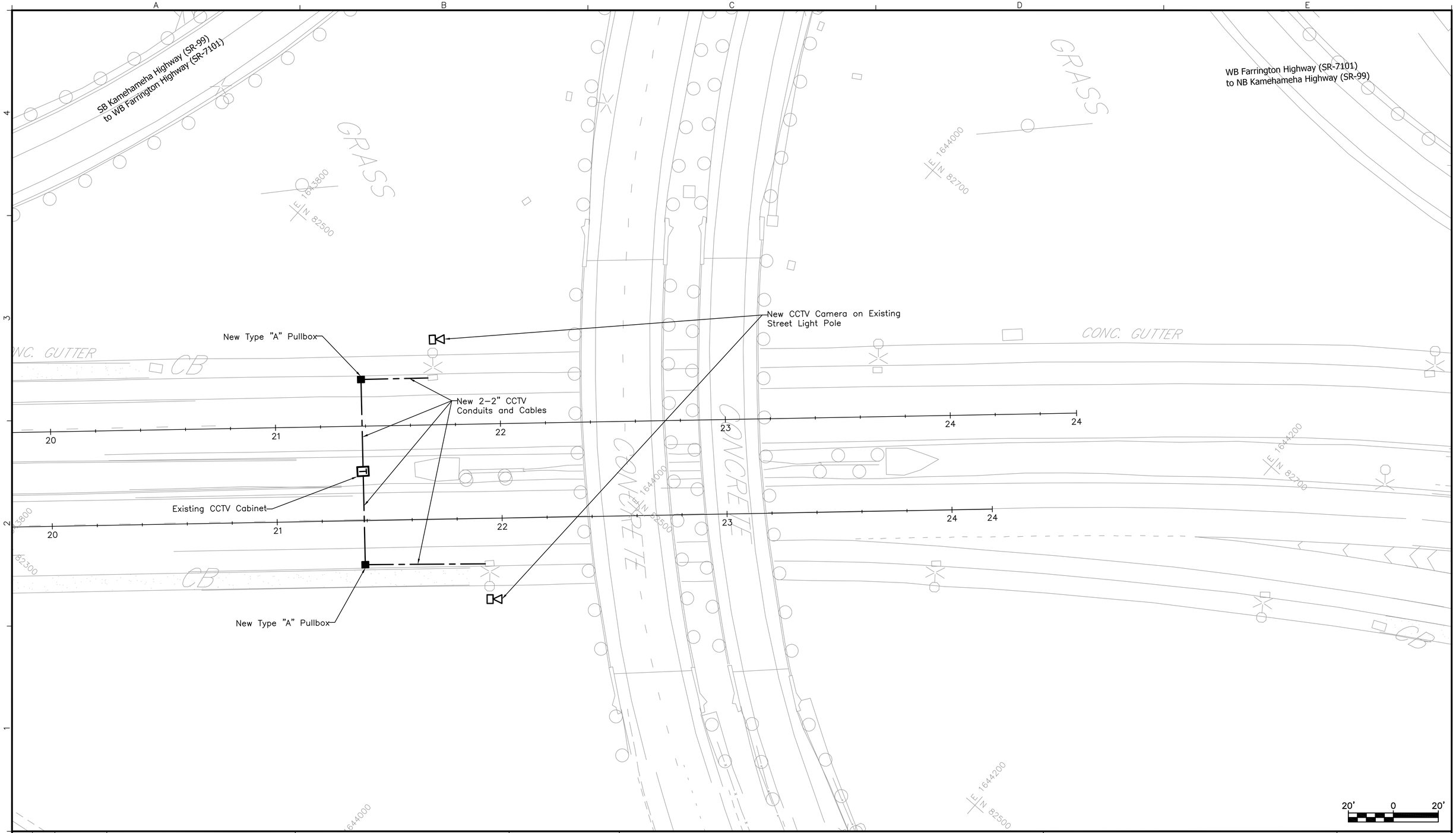
WEST O'AHU/FARRINGTON DESIGN-BUILD

REGIONAL TRAFFIC MAINTENANCE PLAN

FARRINGTON HWY AT H1 KAMEHAMEHA HWY

Contract No.: DB-1200
CADD File: WF-C03-TR302
Drawing No: TR302
Rev. B
Scale: 1"=400'
Page No. 286 of 312

2009-04-28 4:01 PM K:\CADD\03 Civil\Segment C\Sheet Files\WF-C03-TR302.dwg



Rev	By	Date	Description
A	KKN	05–22–09	Issued for Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: Z Tong
Drawn: R Quemado
Checked: K Niiya
Approved: K Niiya
Date: 05–22–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: AUSTIN, TSUTSUMI & ASSOC., INC.
ENGINEERS, SUVEYORS • HONOLULU, HAWAII

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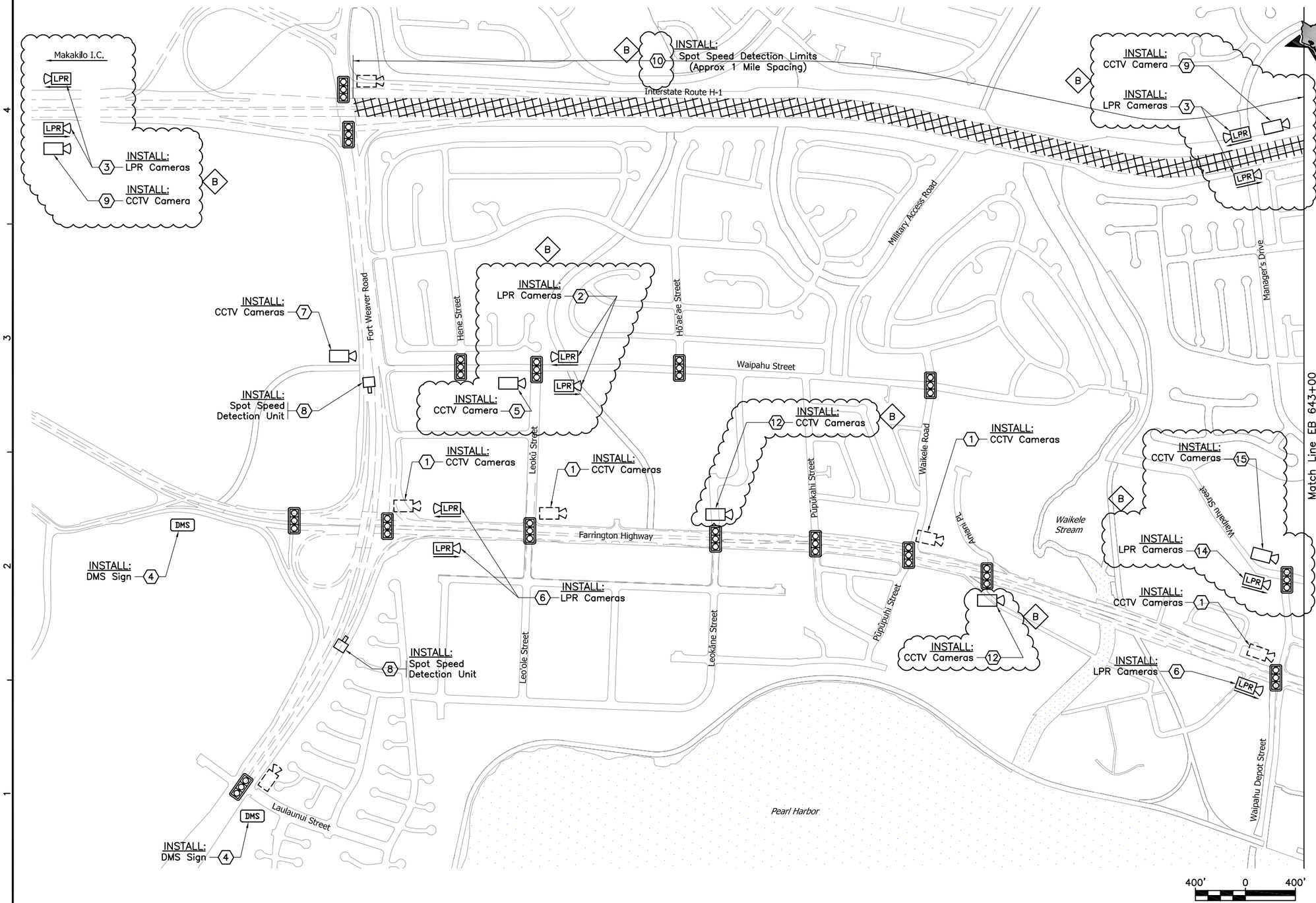
WEST O'AHU/FARRINGTON DESIGN-BUILD

CCTV CAMERA PLAN

FARRINGTON HWY AT KAMEHAMEHA HWY

Contract No.: DB–1200
CADD File: WF–C04–TR512A
Drawing No.: TR512A
Rev.: A
Scale: 1"=20'
Page No.: 297A of 312



NOTES:

1. Contracter Shall Provide and Install Permanent CCTV Camera For Direction Of Traffic Opposite Of Existing Camera. Mount to Existing Traffic Signal Mast arm.
2. Contractor Shall Provide and Install One (1) Temporary LPR Camera Per Thru–Lane, Per Direction Of Travel. Mount to Existing Traffic Signal Mast arm. (Drawing TR908).
3. Contractor Shall Provide and Install Two (2) Permanent LPR Cameras Per Direction Of Travel. Refer To Applicable Site Plans (Drawing TR910 and TR911).
4. Contractor Shall Provide Portable DMS.
5. Contractor Shall Provide and Install One (1) Temporary CCTV Camera. (Drawing TR903)
6. Contractor Shall Provide and Install Two (2) Temporary LPR Cameras Per Direction Of Travel During Construction. Contractor Shall Replace Temporary LPR Cameras With Two (2) Permanent LPR Cameras Per Direction of Travel As Soon As Permanent Power Can Be Accommodated.
7. Contractor Shall Provide and Install One (1) Temproray CCTV Camera During Construction. Contractor Shall Replace Temporary CCTV Camera With One (1) Permanent CCTV Camera As Soon As Permanent Power Can Be Accommodated.
8. Contractor Shall Provide and Install One (1) Spot Speed Detection Unit. (See Drawing TR901)
9. Contractor Shall Provide and Install Two (2) Temporary CCTV Cameras. Mount to Existing Street Light Pole Nearest to Center of Overpass Span. Contractor Shall Replace Temporary CCTV Camera With One (1) Permanent CCTV Camera As Soon as Permanent Power Can Be Accommodated.
10. Contractor Shall Provide and Install Permanent Spot Speed Detection, For Each Direction Of Travel, At Spacing Of Approximately One Mile. (See Drawing TR901).
11. Not Used
12. Contractor Shall Provide and Install Two (2) Temporary CCTV Cameras. Mount to Existing traffic signal Mast Arms. Contractor Shall Replace Temporary CCTV Cameras With Two (2) Permanent CCTV Cameras – One (1) Camera Per Direction of Traffic. Mount to Existing Traffic Signal Mast Arms.
13. Not Used
14. Contractor Shall Provide and Install One (1) Temporary LPR Camera Per Thru Lane, Per Direction of Travel. Contractor Shall Determine Installation Method, Develop Details, and Obtain the Appropriate Approvals.
15. Contractor Shall Provide and Install One (1) Temporary CCTV Camera. Contractor Shall Determine Installation Method, Develop Details, and Obtain the Appropriate Approvals.

B

Rev	By	Date	Description
B	GF	05–22–09	Location Description Revisions
A	GF	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: G Kurashima
Drawn: ICX
Checked: G Fromm
Approved: G Fromm
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: icx transportation
1003 Bishop Street, Suite 720 – Honolulu, HI 96813

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WEST O'AHU/FARRINGTON DESIGN-BUILD

TRAFFIC MANAGEMENT PLAN INTELLIGENT TRANSPORTATION SYSTEMS

SHEET 1 OF 2

Contract No.: DB–1200
CADD File: WF–C04–TR801
Drawing No.: TR801 Rev.: B
Scale: 1" = 400'
Page No.: 309 of 312

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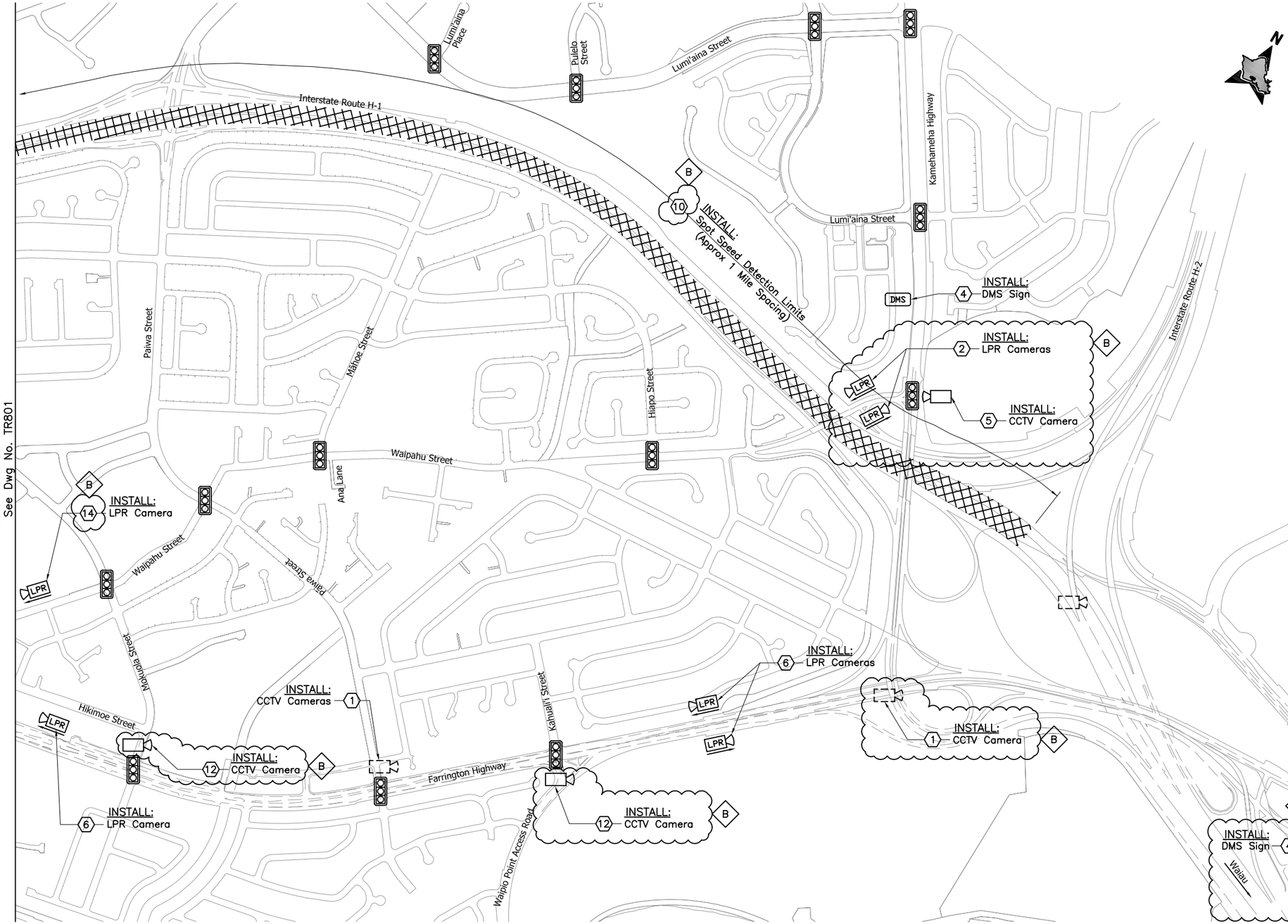

NOTES:

1. Contracter Shall Provide and Install Permanent CCTV Camera For Direction Of Traffic Opposite Of Existing Camera. Mount to Existing Traffic Signal Mast arm.
2. Contractor Shall Provide and Install One (1) Temporary LPR Camera Per Thru–Lane, Per Direction Of Travel. Mount to Existing Traffic Signal Mast arm. (Drawing TR908).
3. Contractor Shall Provide and Install Two (2) Permanent LPR Cameras Per Direction Of Travel. Refer To Applicable Site Plans (Drawing TR910 and TR911).
4. Contractor Shall Provide Portable DMS.
5. Contractor Shall Provide and Install One (1) Temporary CCTV Camera. (Drawing TR903)
6. Contractor Shall Provide and Install Two (2) Temporary LPR Cameras Per Direction Of Travel During Construction. Contractor Shall Replace Temporary LPR Cameras With Two (2) Permanent LPR Cameras Per Direction of Travel As Soon As Permanent Power Can Be Accommodated.
7. Contractor Shall Provide and Install One (1) Temproray CCTV Camera During Construction. Contractor Shall Replace Temporary CCTV Camera With One (1) Permanent CCTV Camera As Soon As Permanent Power Can Be Accommodated.
8. Contractor Shall Provide and Install One (1) Spot Speed Detection Unit. (See Drawing TR901)
9. Contractor Shall Provide and Install Two (2) Temporary CCTV Cameras. Mount to Existing Street Light Pole Nearest to Center of Overpass Span. Contractor Shall Replace Temporary CCTV Camera With One (1) Permanent CCTV Camera As Soon as Permanent Power Can Be Accommodated.
10. Contractor Shall Provide and Install Permanent Spot Speed Detection, For Each Direction Of Travel, At Spacing Of Approximately One Mile. (See Drawing TR901).
11. Not Used
12. Contractor Shall Provide and Install Two (2) Temporary CCTV Cameras. Mount to Existing traffic signal Mast Arms. Contractor Shall Replace Temporary CCTV Cameras With Two (2) Permanent CCTV Cameras – One (1) Camera Per Direction of Traffic. Mount to Existing Traffic Signal Mast Arms.
13. Not Used
14. Contractor Shall Provide and Install One (1) Temporary LPR Camera Per Thru Lane, Per Direction of Travel. Contractor Shall Determine Installation Method, Develop Details, and Obtain the Appropriate Approvals.
15. Contractor Shall Provide and Install One (1) Temporary CCTV Camera. Contractor Shall Determine Installation Method, Develop Details, and Obtain the Appropriate Approvals.

Rev	By	Date	Description
B	GF	05–22–09	Location Description Revisions
A	GF	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: G Kurashima
Drawn: ICX
Checked: G Fromm
Approved: G Fromm
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF — 1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: icx transportation — 1003 Bishop Street, Suite 720 – Honolulu, HI 96813

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WEST O'AHU/FARRINGTON DESIGN-BUILD

TRAFFIC MANAGEMENT PLAN INTELLIGENT TRANSPORTATION SYSTEMS

SHEET 2 OF 2

Contract No.: DB–1200
CADD File: WF–C04–TR802
Drawing No.: TR802 Rev.: B
Scale: 1" = 400'
Page No.: 310 of 312

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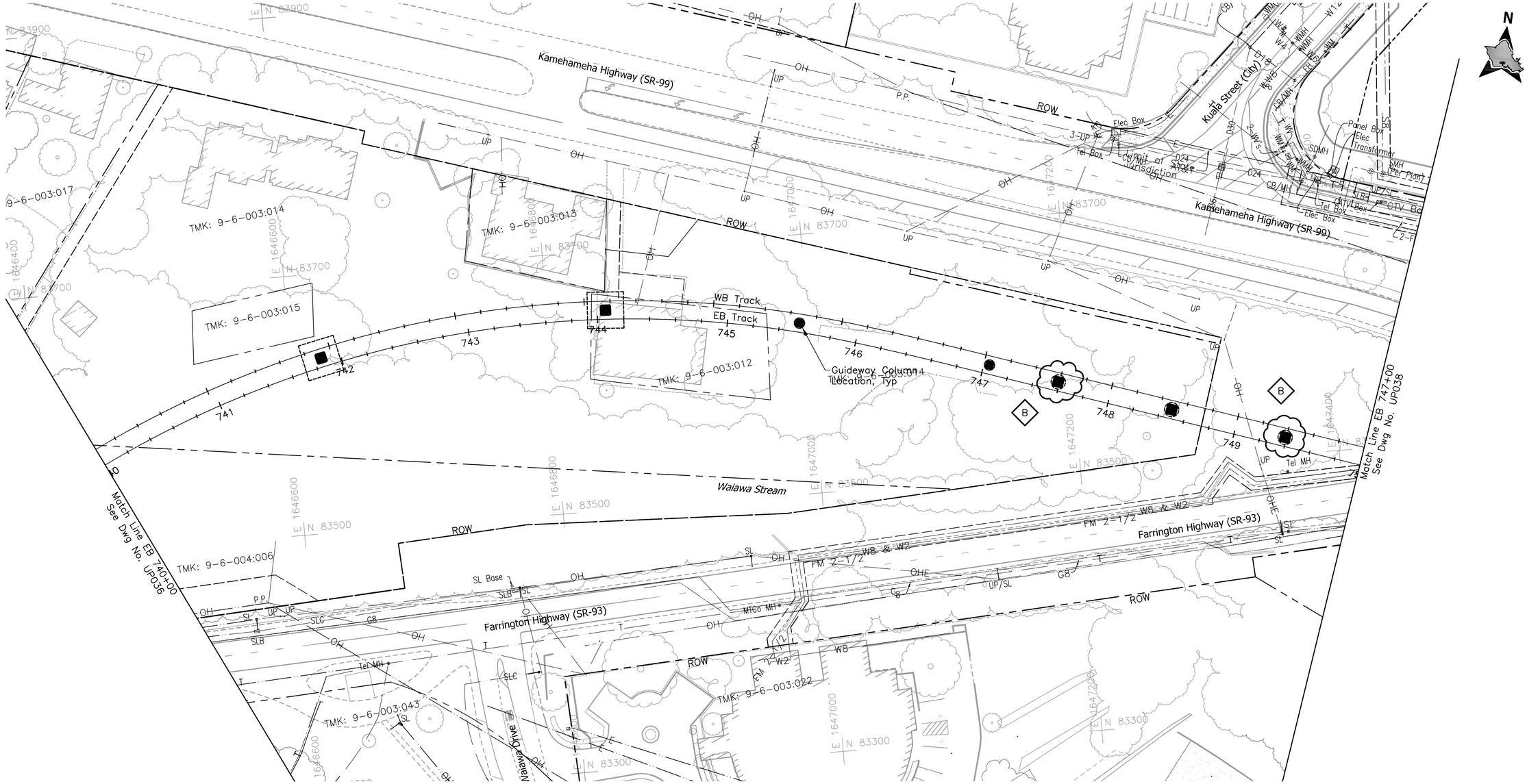

Rev	By	Date	Description
B	JY	05-22-09	Column Location Revision
A	JY	04-03-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: N/A
Drawn: D Toba
Checked: H Andrews
Approved: J Yamamoto
Date: 04-03-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: R. M. TOWILL CORPORATION
Planning – Engineering – Environmental Services – Photogrammetry – Surveying – Construction Management
808 842 1133 2024 North King Street Suite 200 Honolulu Hawaii 96819-3470

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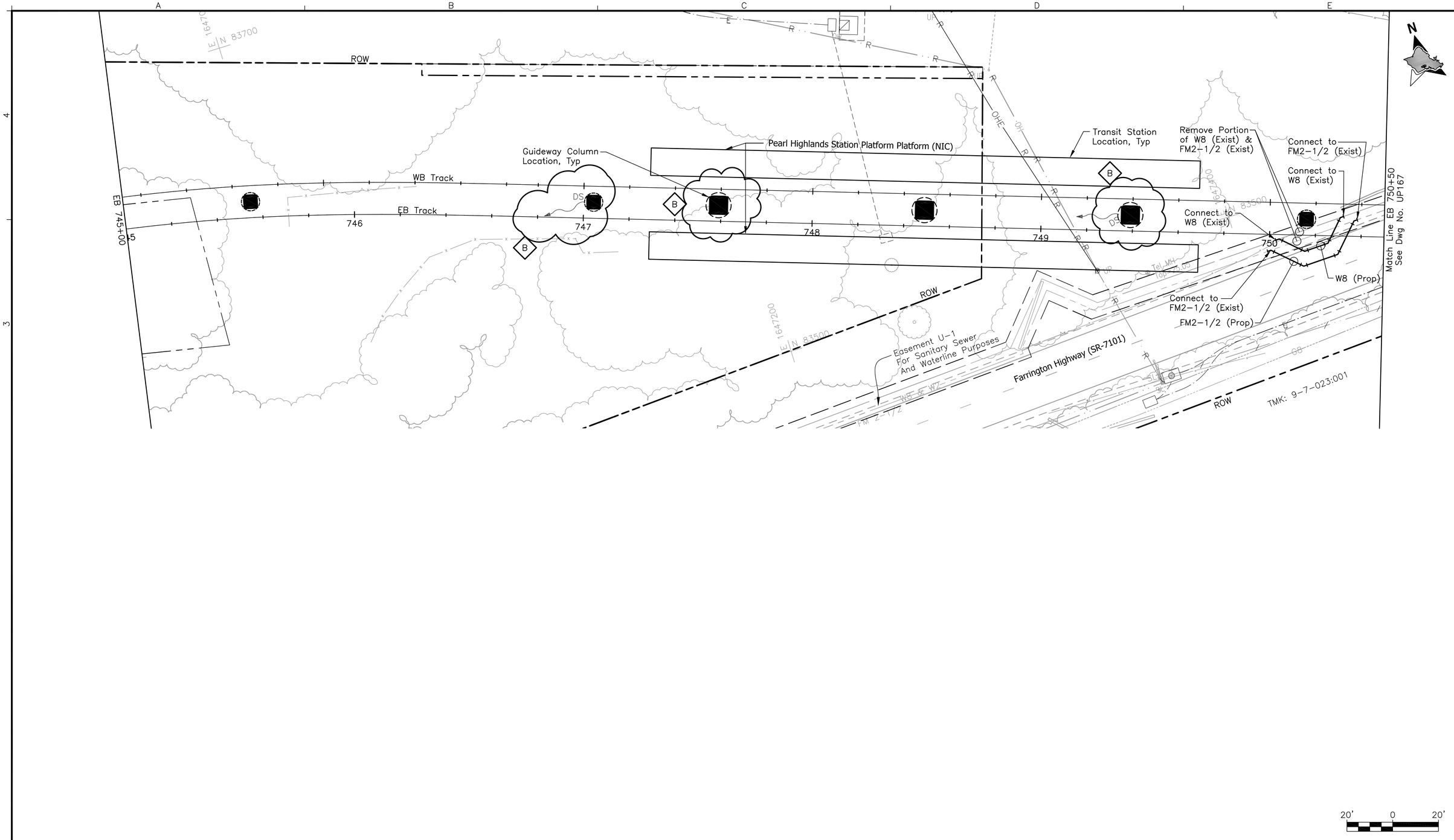
WEST O'AHU/FARRINGTON DESIGN-BUILD

COMPOSITE PLAN EXISTING UTILITIES

EB 740+00 TO EB 747+00

Contract No.: DB-1200
CADD File: WF-D02-UP037
Drawing No.: UP037 Rev. B
Scale: 1"=40'
Page No. 67 of 314



Rev	By	Date	Description
B	JY	05-22-09	Misc. Revisions
A	JY	04-03-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Toba
Drawn: D Toba
Checked: H Andrews
Approved: J Yamamoto
Date: 04-03-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant:
PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:
Planning – Engineering – Environmental Services – Photogrammetry – Surveying – Construction Management
R. M. TOWILL CORPORATION
808 842 1133 2024 North King Street Suite 200 Honolulu Hawaii 96819-3470

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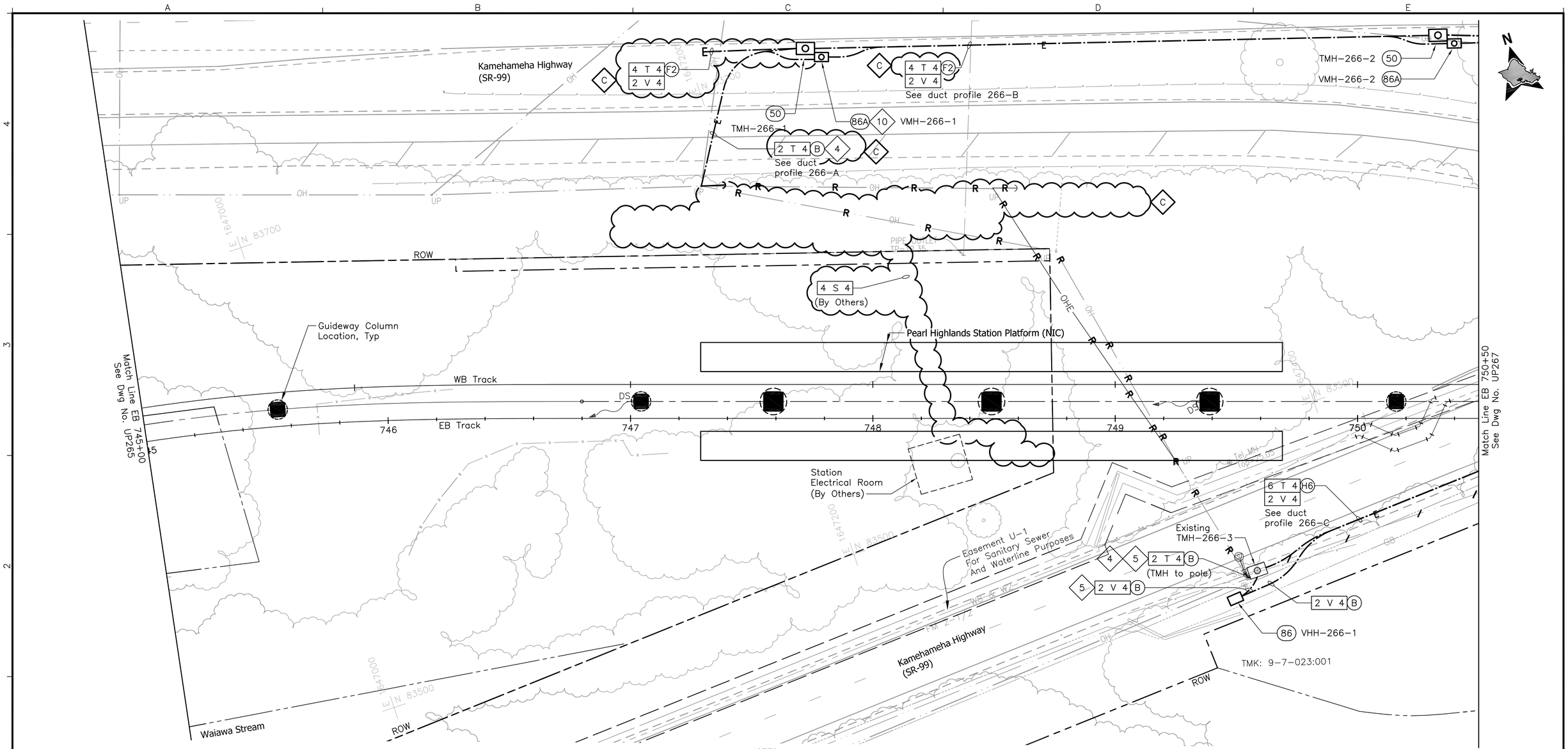
WEST O'AHU/FARRINGTON DESIGN-BUILD

UTILITY RELOCATION PLAN
WATER, SEWER, DRAINAGE, PETROLEUM, & GAS

EB 745+00 TO EB 750+50 SHEET 1 OF 1

Contract No.: DB-1200
CADD File: WF-D03-UP166
Drawing No.: UP166 Rev.: B
Scale: 1"=20'
Page No.: 136 of 314



NOTES:

4 Provide pole riser conduits in complement indicated up to applicable location on pole.

5 Install conduits into manhole under applicable utility company supervision. See Detail 3/UP301.

10 Provide 1-4" sleeve between CATV handhole and HT handhole/manhole.

11 Provide transformer concrete pad (transformer by HECO). See detail 2/UP306.

12 Preliminary new HECO service design only; to be finalized by Design Build Contractor.

B

20' 0 20'

Rev	By	Date	Description
C	FKH	08-05-09	Delete HECO Service; revise HT duct requirements
B	FKH	05-22-09	Update Drawing
A	RCK	04-03-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: R Katahara
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 04-03-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant: MKengineers
286 Kalihi Street
Honolulu, Hawaii 96819
Phone: (808) 848-8622
Fax: (808) 848-5574
E-Mail: info@mkhawaii.com

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WEST O`AHU/FARRINGTON DESIGN-BUILD

UTILITY RELOCATION PLAN ELECTRICAL & COMMUNICATIONS

EB 745+00 TO EB 750+50

Contract No.: DB-1200
CADD File: WF-D03-UP266
Drawing No.: UP266 Rev. C
Scale: 1"=20'
Page No. 242 of 314

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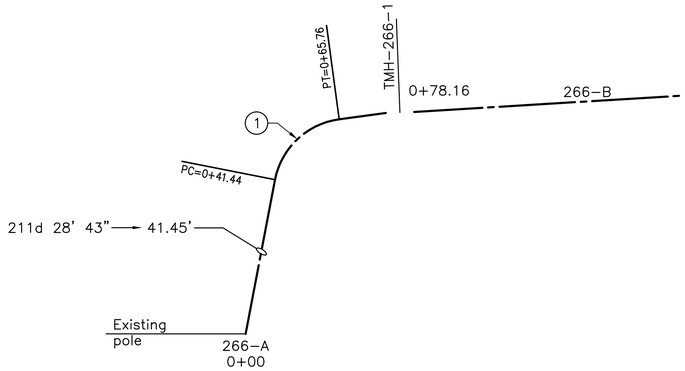
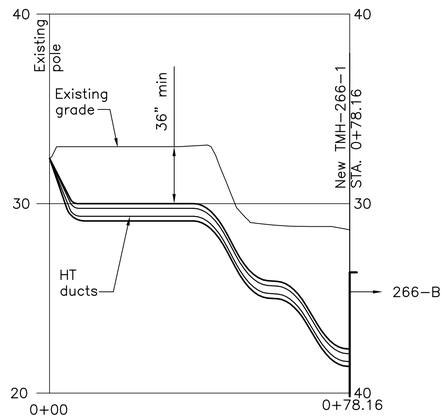
HORIZONTAL GEOMETRY FOR ELECTRICAL DUCTLINE "266-A"							
No	Begin Station	End Station	Delta	Radius	Tangent	Chord	Arc Length
1	0+41.44	0+65.76	71d 06' 36"	20.00'	14.29'	23.26'	24.82'





DUCT PROFILE 266-A

HORIZONAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

20' 0 20'

Rev	By	Date	Description
A	FKH	05-22-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 05-22-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

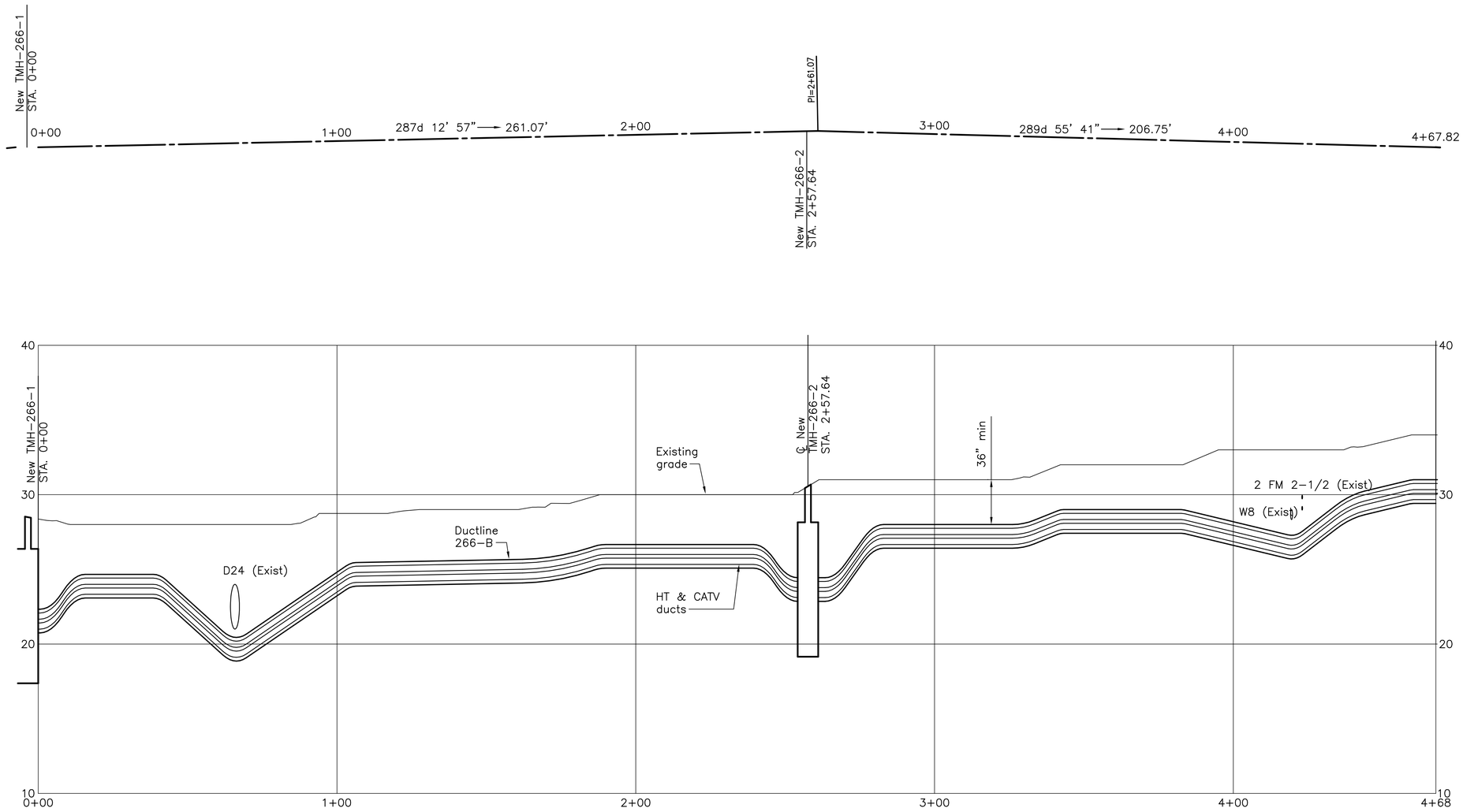
Subconsultant: MKengineers
286 Kalihi Street
Honolulu, Hawaii 96819
Phone: (808) 848-8622
Fax: (808) 848-5574
E-Mail: info@mkhawaii.com

For reduced prints, original page size in inches: 0 1 2 3 4

WEST O`AHU/FARRINGTON DESIGN-BUILD

UTILITY RELOCATION PLAN
DUCT PROFILE 266-A

Contract No.: DB-1200
CADD File: WF-D03-UP266A
Drawing No: UP266A
Rev. A
Scale: 1"=20'
Page No. 243 of 314



DUCT PROFILE 266-B

HORIZONAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

20' 0 20'

Rev	By	Date	Description
A	FKH	05-22-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 05-22-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant: MKengineers
286 Kalihi Street
Honolulu, Hawaii 96819
Phone: (808) 848-8622
Fax: (808) 848-5574
E-Mail: info@mkhawaii.com

For reduced prints, original page size in inches: 0 1 2 3 4

WEST O`AHU/FARRINGTON DESIGN-BUILD

UTILITY RELOCATION PLAN
DUCT PROFILE 266-B

Contract No.: DB-1200
CADD File: WF-D03-UP266B
Drawing No.: UP266B
Rev.: A
Scale: 1"=20'
Page No.: 244 of 314

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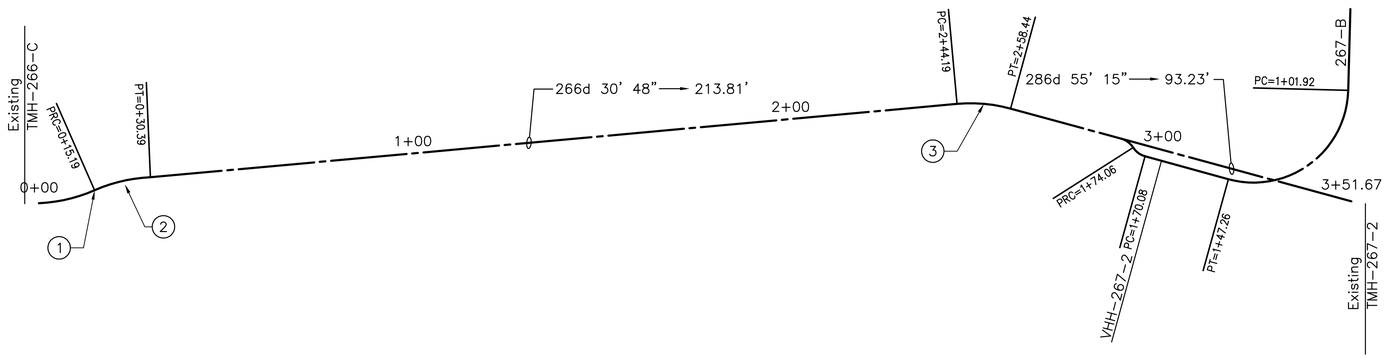
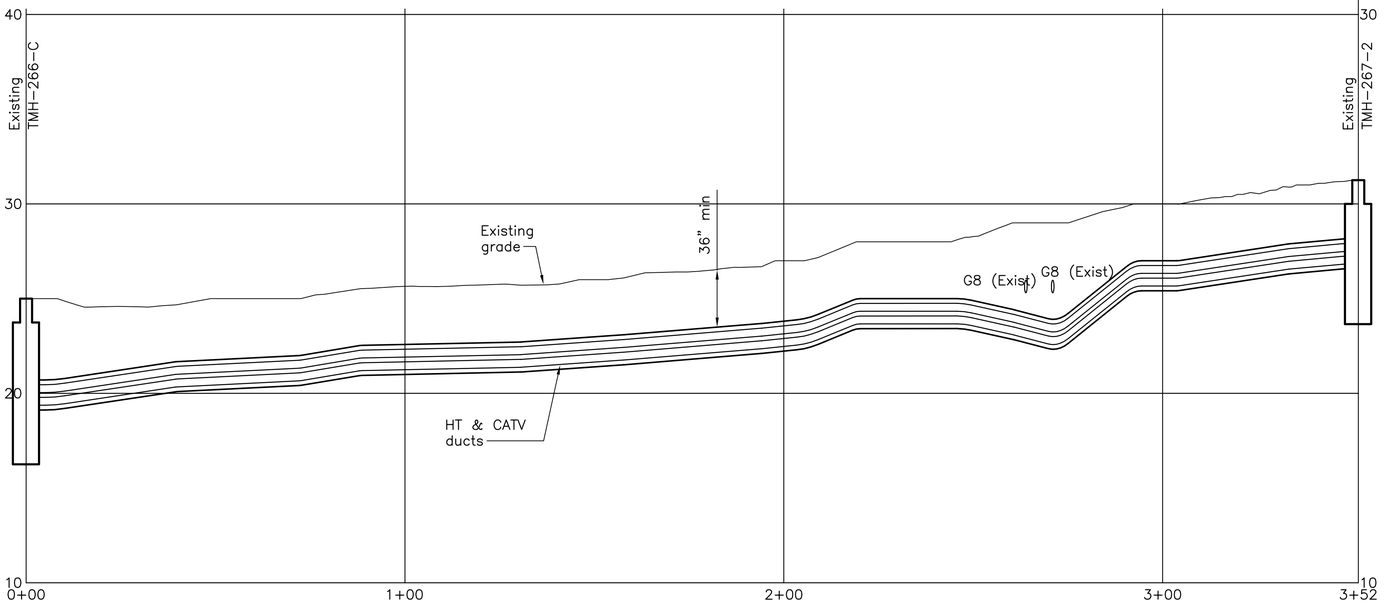


HORIZONTAL GEOMETRY FOR ELECTRICAL DUCTLINE "266-C"							
No	Begin Station	End Station	Delta	Radius	Tangent	Chord	Arc Length
1	0+00	0+15.19	21d 20' 42"	40.78'	7.69'	15.11'	15.19'
2	0+15.19	0+30.39	21d 20' 42"	40.78'	7.69'	15.11'	15.19'
3	2+44.19	2+58.44	20d 24' 27"	40.00'	7.20'	14.17'	14.25'



DUCT PROFILE 266-C

HORIZONAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

20' 0 20'

Rev	By	Date	Description
A	FKH	05-22-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: F Hirakami
Drawn: D Saito
Checked: P Uyeda
Approved: P Uyeda
Date: 05-22-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant: MKengineers
286 Kalihi Street
Honolulu, Hawaii 96819
Phone: (808) 848-8622
Fax: (808) 848-5574
E-Mail: info@mkhawaii.com

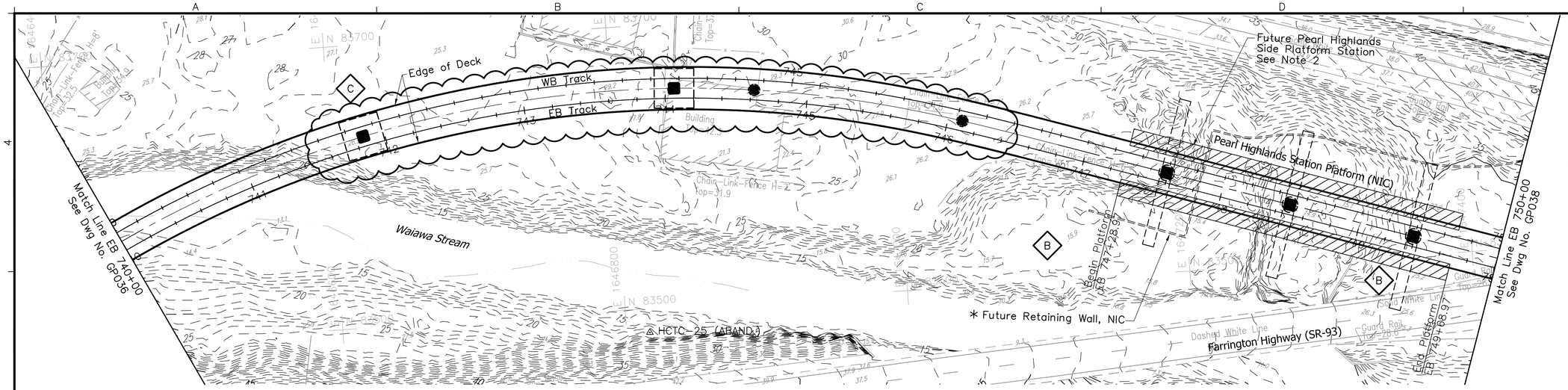
For reduced prints, original page size in inches: 0 1 2 3 4

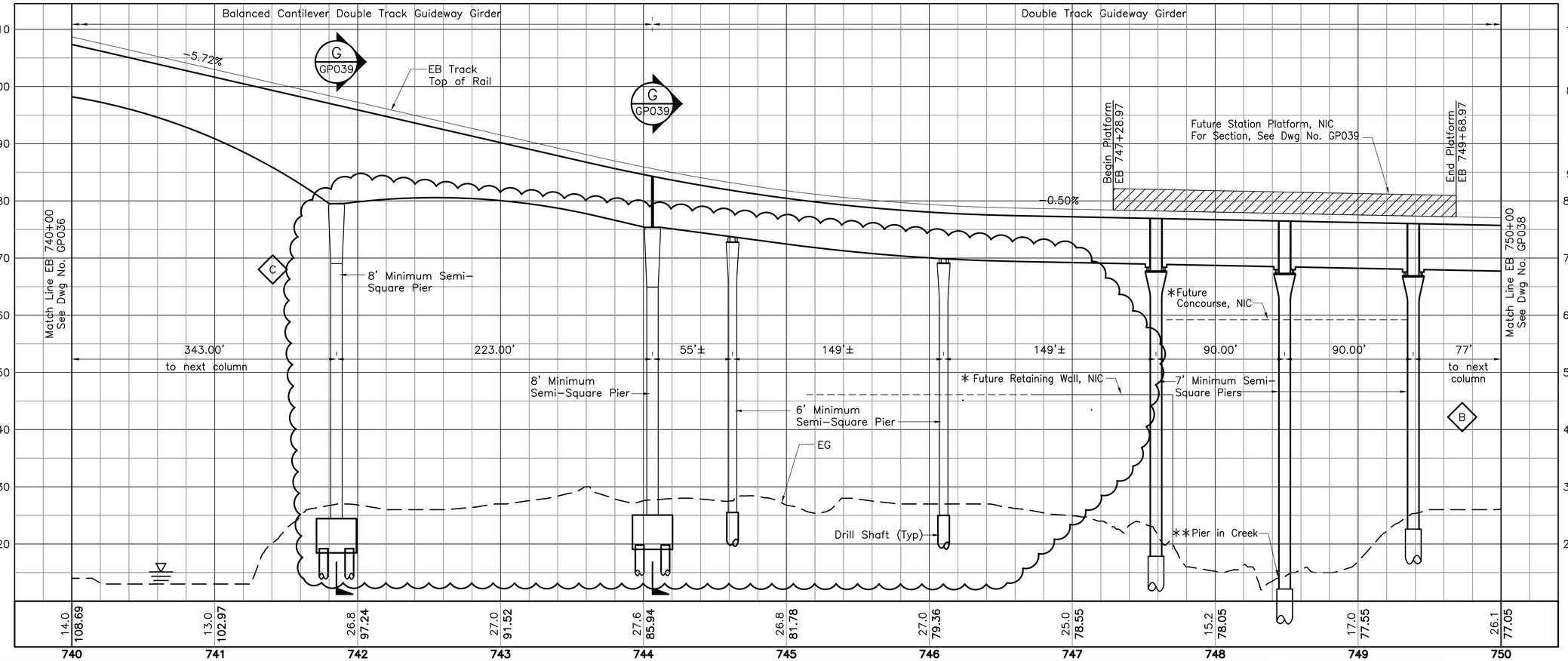
WEST O`AHU/FARRINGTON DESIGN-BUILD

UTILITY RELOCATION PLAN
DUCT PROFILE 266-C

Contract No.: DB-1200
CADD File: WF-D03-UP266C
Drawing No: UP266C
Rev. A
Scale: 1"=20'
Page No. 245 of 314

P:\01_PROJECTS\20070\20768\1-HHCTO\SE\S-B_Cvwg\WF-D03-UP255A-UP287C.dwg, WF-D03-UP266C, 5/20/2009 8:38:01 AM, dwyn, 1:1





NOTE:

1. See Dwg Nos. SG001 and SG002 for Structural General Notes, Symbols and Abbreviations.
2. For Station Details, See Dwg Nos. FP025 through FP031.
3. The configuration shown relative to NIC work and site condition is under development and subject to change.
4. The depiction of retaining walls is for approximate location only. The type of wall and its foundation required to protect structural facilities against ground movement and settlement is to be determined by the Design–Builder. The Design–Builder shall also provide retaining walls that may not be shown, but are dependant on his approved grading plans.
5. Complete Structural and Geotechnical calculations and drawings must be provided for all newly constructed structures and for all facilities within the zone of construction influence.
6. Drilled shaft foundations are shown for reference only. The actual type and size of the pier foundations shall be determined by the Design–Builder.
7. Unless shown otherwise on the drawings, the semi–square columns, if used, shall not be less than 6–foot by 6–foot, and the associated drilled shafts shall not be less than 8–foot in diameter.
8. *The effects of future retaining walls and earth fill on pier foundations require coordination with the station designers. Future concourse is to be supported vertically from grade, but horizontal movements and forces require coordination with the station designers.
9. **Design–Builder responsible for obtaining permits for pier construction.

40' 0' 40'

10' 0' 10'

Rev	By	Date	Description
C	AB	06–26–09	Revised/Added Mandatory Column Locations
B	AB	05–22–09	Rev Columns; Added Future RW; Rev Notes
A	AB	04–03–09	Issued for Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Yavorsky
Drawn: T Cochran
Checked: T Kimura
Approved: A Borst
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant:
PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813
Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

STRUCTURAL PLAN & PROFILE

EB 740+00 TO EB 747+00

Contract No.: DB–1200
CADD File: WF–G04–GP037
Drawing No.: GP037 Rev.: C
Scale: 1"=40' H, 1"=10' V
Page No.: 58 of 209

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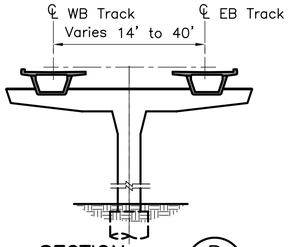
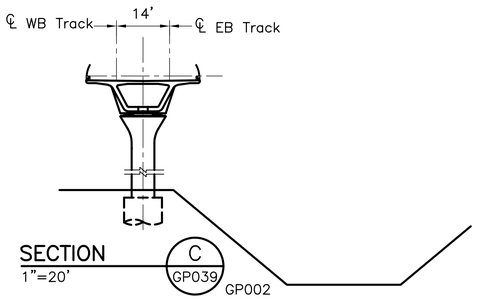


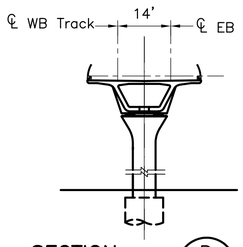
SECTION B
1"=20'
GP039

GP001
GP002



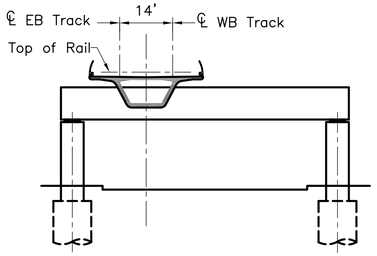
SECTION C
1"=20'
GP039

GP002
GP003
GP004
GP005
GP006



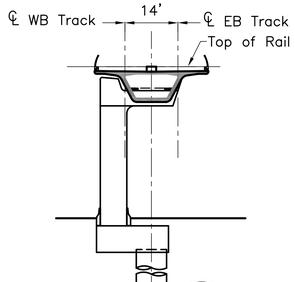
SECTION D
1"=20'
GP039

GP007 GP016 GP025
GP008 GP017 GP026
GP009 GP018 GP027
GP010 GP019 GP028
GP011 GP020 GP029
GP012 GP021 GP030
GP013 GP022 GP031
GP014 GP023 GP032
GP015 GP024 GP037
GP038



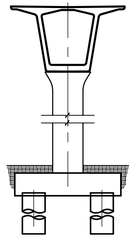
SECTION E
1"=20'
GP039

GP014
GP031



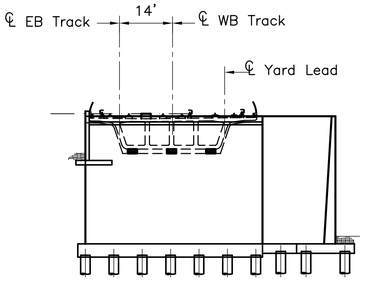
SECTION F
1"=20'
GP039

GP016
GP017
GP031
GP032



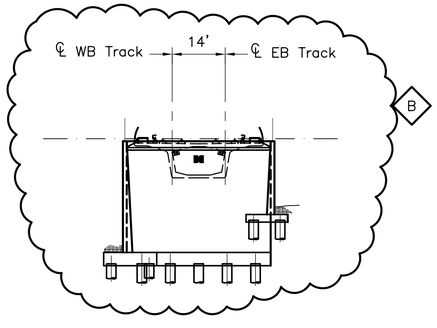
SECTION G
1"=20'
GP039

GP036
GP037



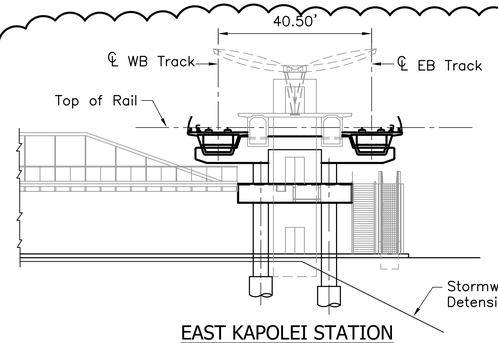
SECTION H
1"=20'
GP039

GP032

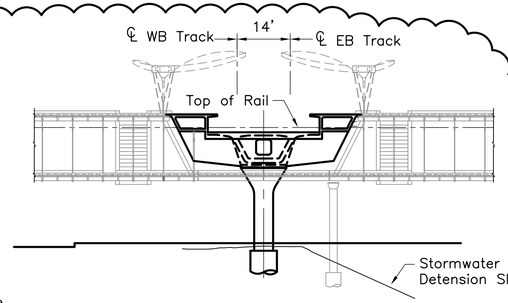


SECTION J
1"=20'
GP039

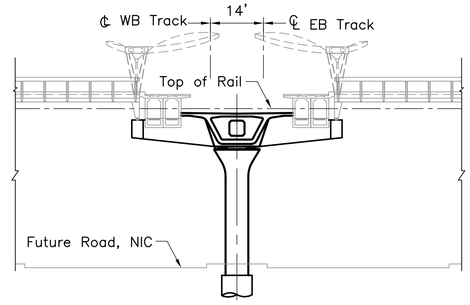
GP036



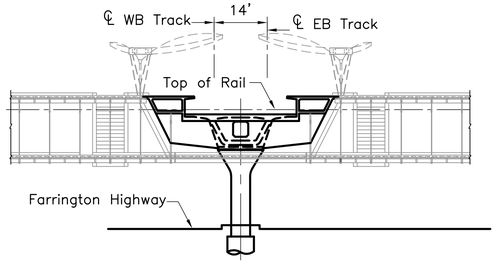
EAST KAPOLEI STATION
SECTION STA 397+00
1"=20'



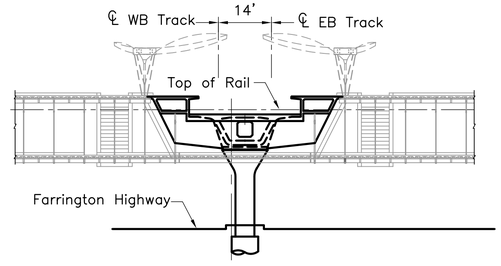
UH WEST O'AHU STATION
SECTION STA 448+40
1"=20'



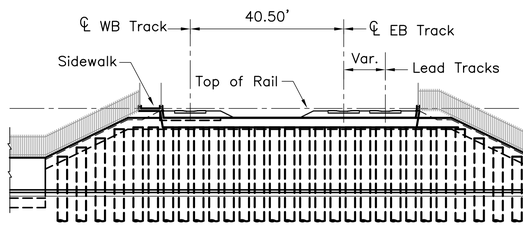
HO'OPILI STATION
SECTION STA 500+80
1"=20'



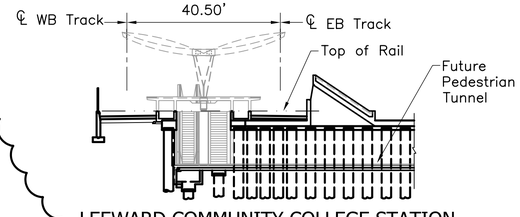
WEST LOCH STATION
SECTION STA 583+60
1"=20'



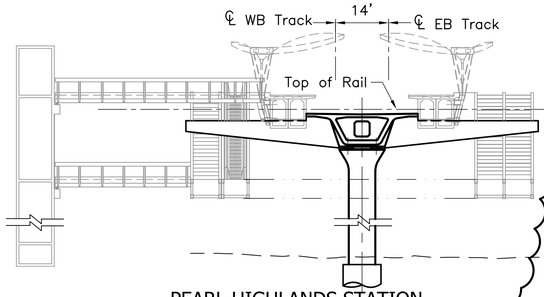
WAIPAHU TRANSIT CENTER STATION
SECTION STA 651+80
1"=20'



ALA IKE STREET TUNNEL
SECTION STA 722+40
1"=20'



LEEWARD COMMUNITY COLLEGE STATION
SECTION STA 725+60
1"=20'



PEARL HIGHLANDS STATION
SECTION STA 748+50
1"=20'

20' 0' 20'

Rev	By	Date	Description
B	AB	05–22–09	Revised Sections
A	AB	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Yavorsky
Drawn: T Cochran
Checked: T Kimura
Approved: A Borst
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

STRUCTURAL
PLAN & PROFILE SECTIONS

Contract No.: DB–1200
CADD File: WF–G04–GP039
Drawing No: GP039 Rev. B
Scale: 1"=20'
Page No. 60 of 209

2009–05–20 7:45 AM \\hon–t1\transit\CADD\08 Structural\W Oahu_Farrington DB\WF–G04–GP039.dwg

FUTURE STATION LOADS ON GUIDEWAY COLUMN GW5
LOADS IN KIPS=1000 POUNDS ON GUIDEWAY PIERS AND PIER BEAMS

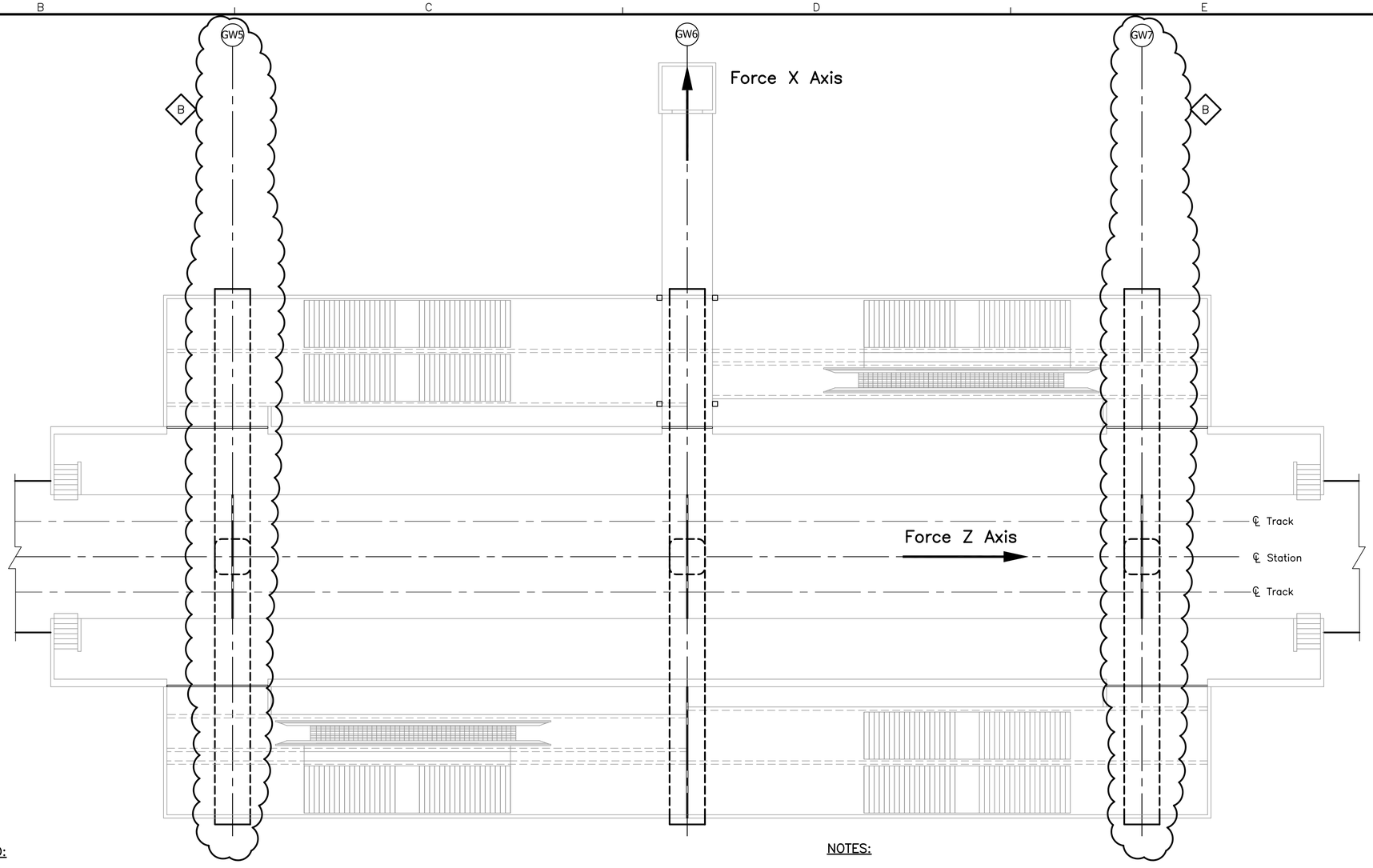
	DC DW	LL PL	IM	EQ	WS	TG	TU	SH CR	SE	XX
Ay	792	147	0	37	0	0	0	0	–	–
Ax	–	–	–	186	40	0	0	0	–	–
Az	–	–	–	186	12	0	*	*	–	–
By	792	147	0	37	0	0	0	0	–	–
Bx	–	–	–	186	40	0	0	0	–	–
Bz	–	–	–	186	12	0	*	*	–	–
Cy	149	58	0	4	0	0	0	0	–	–
Cx	–	–	–	35	18	0	0	0	–	–
Cz	–	–	–	35	6	0	*	*	–	–
Dy	80	33	0	5	0	0	0	0	–	–
Dx	–	–	–	19	18	0	0	0	–	–
Dz	–	–	–	19	6	0	*	*	–	–

FUTURE STATION LOADS ON GUIDEWAY COLUMN GW6
LOADS IN KIPS=1000 POUNDS ON GUIDEWAY PIERS AND PIER BEAMS

	DC DW	LL PL	IM	EQ	WS	TG	TU	SH CR	SE	XX
Ay	1022	194	0	32	0	0	0	0	–	–
Ax	–	–	–	240	63	0	0	0	–	–
Az	–	–	–	240	19	0	*	*	–	–
By	1022	194	0	32	0	0	0	0	–	–
Bx	–	–	–	240	63	0	0	0	–	–
Bz	–	–	–	240	19	0	*	*	–	–
Cy	335	138	0	8	0	0	0	0	–	–
Cx	–	–	–	79	19	0	0	0	–	–
Cz	–	–	–	79	6	0	*	*	–	–
Dy	160	60	0	4	0	0	0	0	–	–
Dx	–	–	–	38	19	0	0	0	–	–
Dz	–	–	–	38	6	0	*	*	–	–
Ey	62	36	0	3	0	0	0	0	–	–
Ex	–	–	–	15	5	0	0	0	–	–
Ez	–	–	–	15	15	0	*	*	–	–
Fy	297	116	0	4	0	0	0	0	–	–
Fx	–	–	–	70	19	0	0	0	–	–
Fz	–	–	–	70	6	0	*	*	–	–
Gy	297	116	0	4	0	0	0	0	–	–
Gx	–	–	–	70	19	0	0	0	–	–
Gz	–	–	–	70	6	0	*	*	–	–

FUTURE STATION LOADS ON GUIDEWAY COLUMN GW7
LOADS IN KIPS=1000 POUNDS ON GUIDEWAY PIERS AND PIER BEAMS

	DC DW	LL PL	IM	EQ	WS	TG	TU	SH CR	SE	XX
Ay	792	147	0	37	0	0	0	0	–	–
Ax	–	–	–	186	40	0	0	0	–	–
Az	–	–	–	186	12	0	*	*	–	–
By	792	147	0	37	0	0	0	0	–	–
Bx	–	–	–	186	40	0	0	0	–	–
Bz	–	–	–	186	12	0	*	*	–	–
Cy	149	58	0	4	0	0	0	0	–	–
Cx	–	–	–	35	18	0	0	0	–	–
Cz	–	–	–	35	6	0	*	*	–	–
Dy	80	33	0	5	0	0	0	0	–	–
Dx	–	–	–	19	18	0	0	0	–	–
Dz	–	–	–	19	6	0	*	*	–	–



PLATFORM PLAN
NTS

LEGEND:

CR = Creep
DC = Dead Load of structural components and nonstructural attachements
DW = Dead Load of wearing surfaces and utilities
EQ = Earthquake
IM = Vehicular dynamic load allowance
LL = Vehicular Live Load
PL = Pedestrian Live Load
SE = Settlement
SH = Shrinkage
TG = Temperature gradient
TU = Uniform Temperature
WS = Wind Load on structure
XX = Other Loads
* = Load dependent on bearing stiffness. Requires coordination with station designers.

NOTES:

1. Future station loads designated as A, B, C, D, and E, in the tables on this sheet are those that shall be supported by the structural elements and foundations to be installed by the guideway Design–Build contract.
2. The load designators "x, y, and z," indicate the direction of the load in terms of the global coordinate system where "x" is horizontal and perpendicular to the trackways, "y" is vertical, and "z" is horizontal and parallel to the trackways.
3. All other forces and loads designated by the HHCTCP Design Criteria, Section 9, Structural, shall also be applied in conjunction with those in 1 above.
4. All forces shall be applied in accordance with the above HHCTCP Design Criteria.
5. B All forces in the structural elements and foundations being installed by the guideway Design–Build contract shall be applied in a manner that produces the maximum design stresses for the service limit state design and the most unfavorable force load combinations for strength limit state design.

Rev	By	Date	Description
B	AB	05–22–09	Rev Column Locs; Rev Loads; Rev Notes
A	AB	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Yavorsky
Drawn: T Cochran
Checked: T Kimura
Approved: A Borst
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

PEARL HIGHLANDS STATION
SHEET 1 OF 7

GUIDEWAY FORCES

Contract No.: DB–1200
CADD File: WF–G05–FP025
Drawing No: FP025 Rev. B
Scale: NTS
Page No. 101 of 209

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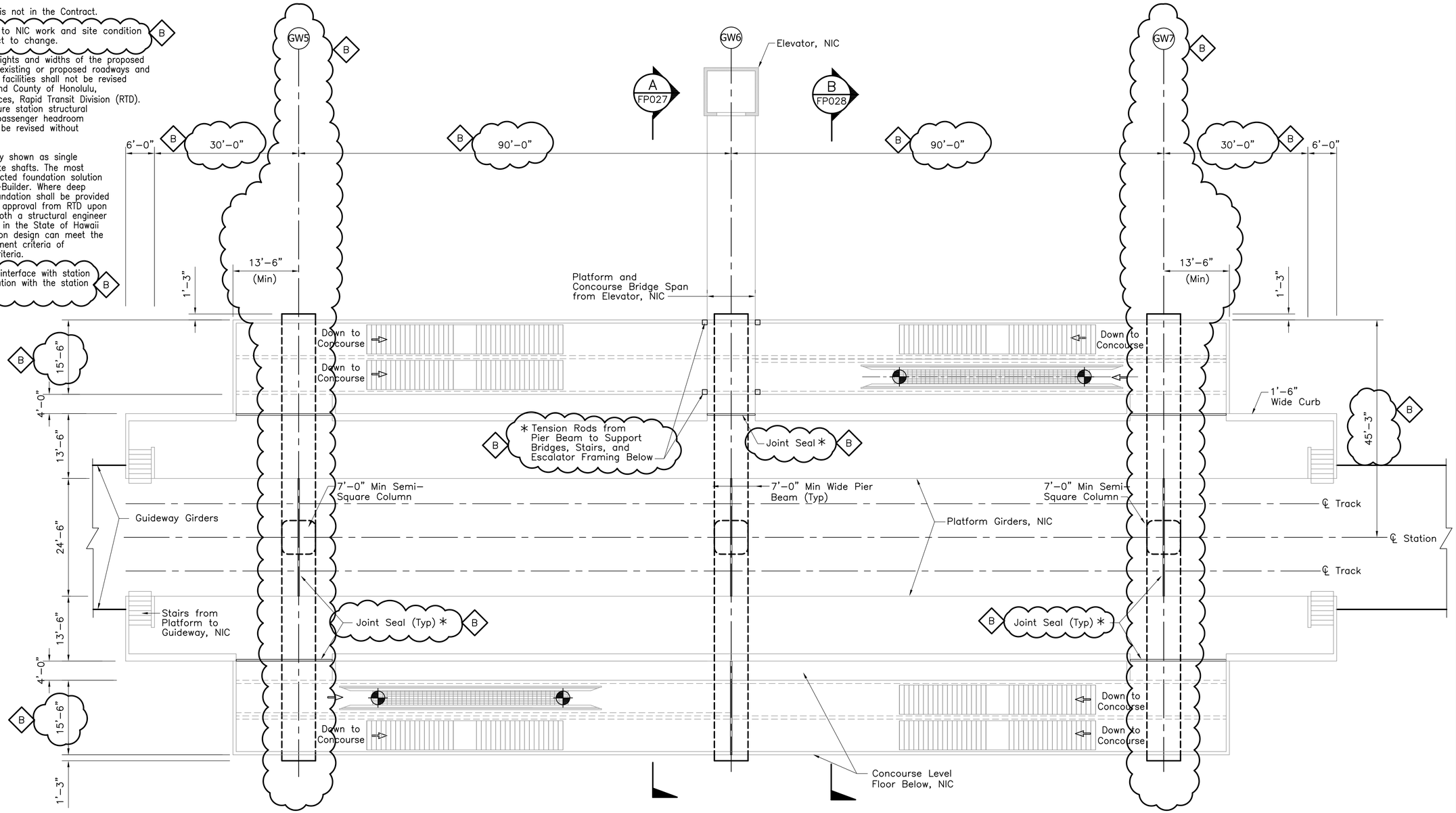
NOTES:

1. Future station loads are defined and shown on SG001 and FP025.
2. Fade out lines indicate work that is not in the Contract.
3. The configuration shown relative to NIC work and site condition is under development and subject to change.
4. Dimensions defining clearances, heights and widths of the proposed guideway trackways, and those to existing or proposed roadways and other City and County of Honolulu facilities shall not be revised without the approval of the City and County of Honolulu, Department of Transportation Services, Rapid Transit Division (RTD). Dimensions and clearances for future station structural elements, station equipment, and passenger headroom and horizontal clearance shall not be revised without the approval of RTD.
5. Deep foundations are predominantly shown as single cast-in-drilled-hole (CIDH) concrete shafts. The most efficient and cost effective constructed foundation solution is the responsibility of the Design-Builder. Where deep foundations are shown, a deep foundation shall be provided unless the Design-Builder receives approval from RTD upon receipt of calculations sealed by both a structural engineer and geotechnical engineer licensed in the State of Hawaii that demonstrate that his foundation design can meet the performance and differential settlement criteria of Chapter 9 of the HHCTC Design Criteria.
6. ∗ Joint seals and tension rods that interface with station structure elements require coordination with the station designers.



PLATFORM LEVEL PLAN

3/32"=1'-0"

2' 0 2' 4' 8' 12' 20'

Rev	By	Date	Description
B	AB	05-22-09	Rev Column Loc; Rem/Rev Dims & Notes
A	AB	04-03-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Yavorsky
Drawn: T Cochran
Checked: T Kimura
Approved: A Borst
Date: 04-03-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 - Honolulu, HI 96813

Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

PEARL HIGHLANDS STATION
SHEET 2 OF 7

PLATFORM LEVEL PLAN

Contract No.: DB-1200
CADD File: WF-G05-FP026
Drawing No: FP026 Rev. B
Scale: 3/32"=1'-0"
Page No. 102 of 209

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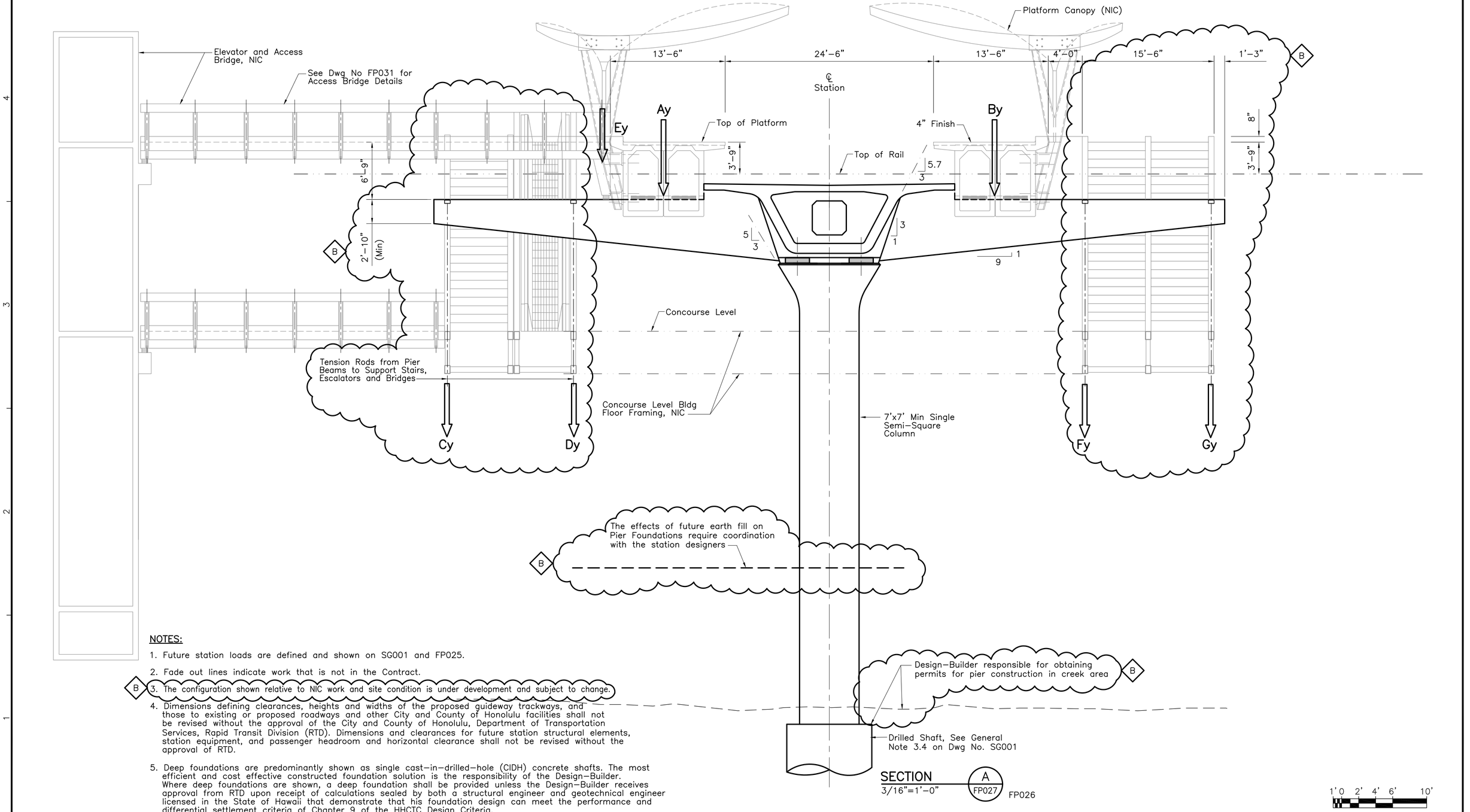

NOTES:

1. Future station loads are defined and shown on SG001 and FP025.
2. Fade out lines indicate work that is not in the Contract.
3. The configuration shown relative to NIC work and site condition is under development and subject to change.
4. Dimensions defining clearances, heights and widths of the proposed guideway trackways, and those to existing or proposed roadways and other City and County of Honolulu facilities shall not be revised without the approval of the City and County of Honolulu, Department of Transportation Services, Rapid Transit Division (RTD). Dimensions and clearances for future station structural elements, station equipment, and passenger headroom and horizontal clearance shall not be revised without the approval of RTD.
5. Deep foundations are predominantly shown as single cast-in-drilled-hole (CIDH) concrete shafts. The most efficient and cost effective constructed foundation solution is the responsibility of the Design-Builder. Where deep foundations are shown, a deep foundation shall be provided unless the Design-Builder receives approval from RTD upon receipt of calculations sealed by both a structural engineer and geotechnical engineer licensed in the State of Hawaii that demonstrate that his foundation design can meet the performance and differential settlement criteria of Chapter 9 of the HHCTC Design Criteria.

Rev	By	Date	Description
B	AB	05-22-09	Rev Structure; Rem/Rev Dims; Rev Notes
A	AB	04-03-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Yavorsky
Drawn: T Cochran
Checked: T Kimura
Approved: A Borst
Date: 04-03-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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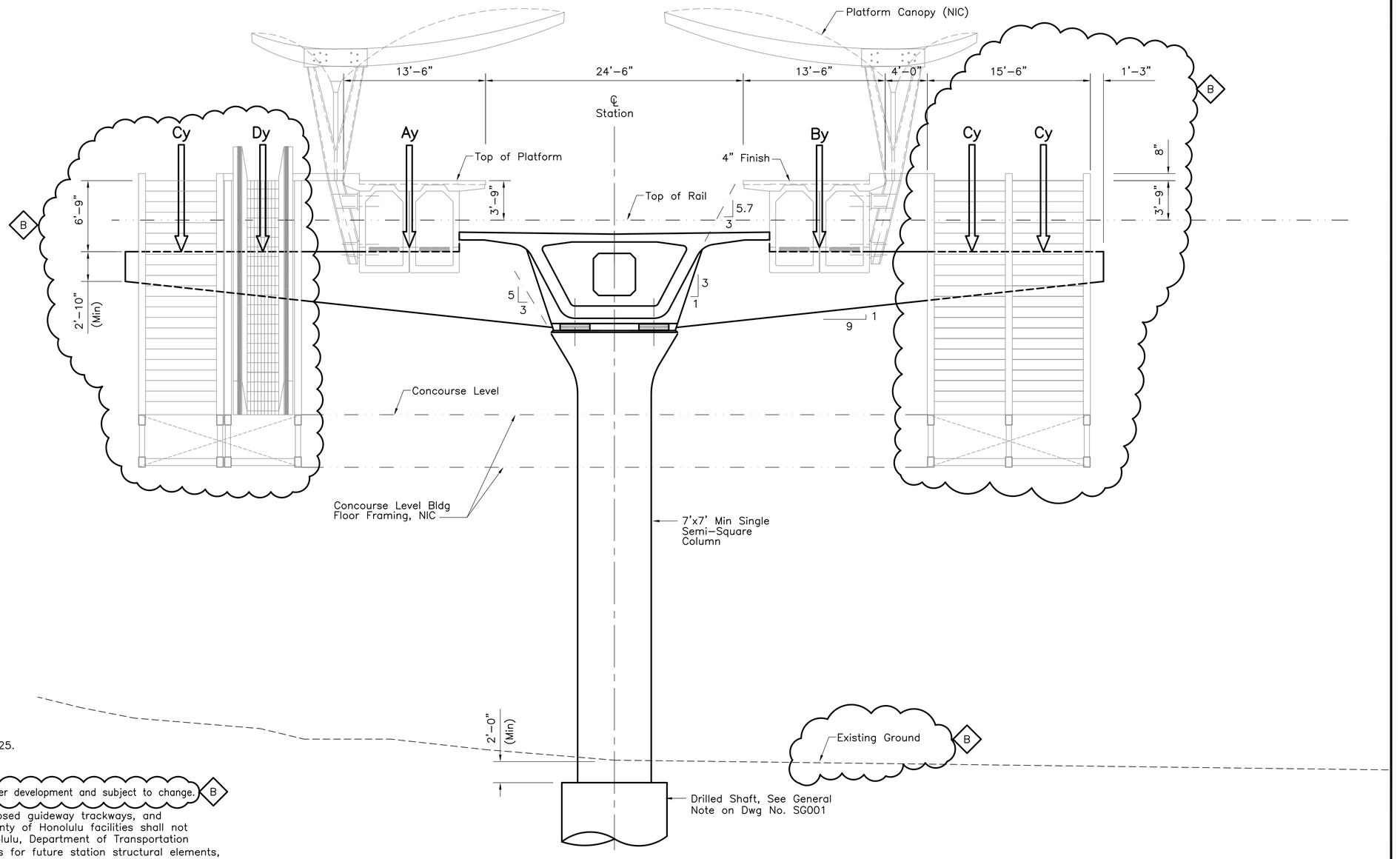
WEST O'AHU/FARRINGTON DESIGN-BUILD

PEARL HIGHLANDS STATION
SHEET 3 OF 7

SECTION A

Contract No.: DB-1200
CADD File: WF-G05-FP027
Drawing No: FP027 Rev. B
Scale: 3/16"=1'-0"
Page No. 103 of 209

2009-05-19 3:06 PM \\hon-t1\transit\CADD\08 Structural\W Oahu_Farrington DB\WF-G05-FP027.dwg



SECTION B
3/16"=1'–0"
FP028 FP026

NOTES:

1. Future station loads are defined and shown on SG001 and FP025.
2. Fade out lines indicate work that is not in the Contract.
3. The configuration shown relative to NIC work and site condition is under development and subject to change. B
4. Dimensions defining clearances, heights and widths of the proposed guideway trackways, and those to existing or proposed roadways and other City and County of Honolulu facilities shall not be revised without the approval of the City and County of Honolulu, Department of Transportation Services, Rapid Transit Division (RTD). Dimensions and clearances for future station structural elements, station equipment, and passenger headroom and horizontal clearance shall not be revised without the approval of RTD.
5. Deep foundations are predominantly shown as single cast–in–drilled–hole (CIDH) concrete shafts. The most efficient and cost effective constructed foundation solution is the responsibility of the Design–Builder. Where deep foundations are shown, a deep foundation shall be provided unless the Design–Builder receives approval from RTD upon receipt of calculations sealed by both a structural engineer and geotechnical engineer licensed in the State of Hawaii that demonstrate that his foundation design can meet the performance and differential settlement criteria of Chapter 9 of the HHCTC Design Criteria.

1'0 2' 4' 6' 10'

Rev	By	Date	Description
B	AB	05–22–09	Rev Structure; Rem/Rev Dims; Rev Notes
A	AB	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Yavorsky
Drawn: T Cochran
Checked: T Kimura
Approved: A Borst
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813
Subconsultant:

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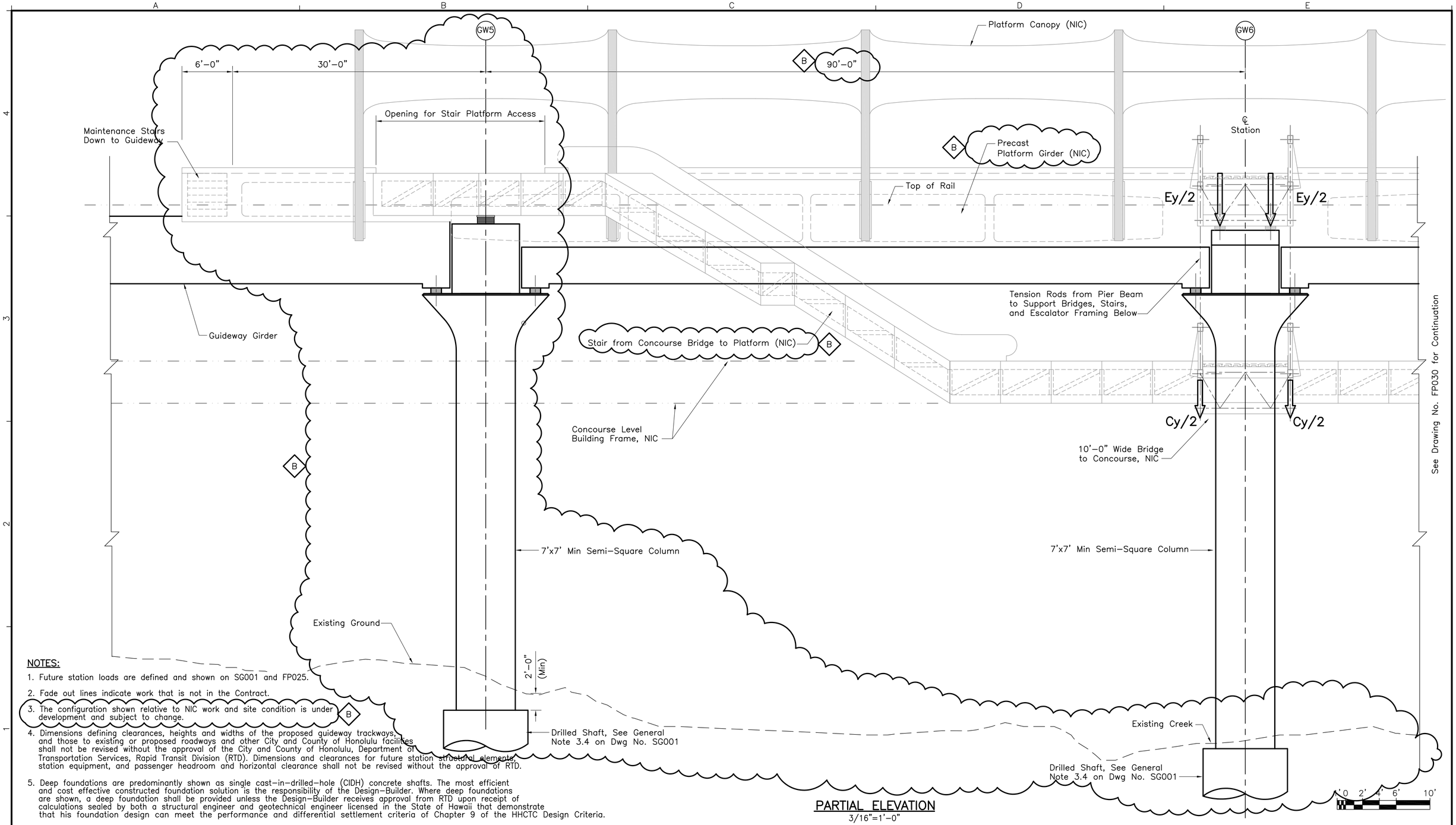
WEST O'AHU/FARRINGTON DESIGN-BUILD

PEARL HIGHLANDS STATION
SHEET 4 OF 7

SECTION B

Contract No.: DB–1200
CADD File: WF–G05–FP028
Drawing No.: FP028
Rev.: B
Scale: 3/16"=1'–0"
Page No.: 104 of 209



PARTIAL ELEVATION
3/16"=1'–0"

NOTES:

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Rev	By	Date	Description
B	AB	05–22–09	Rev Column Loc; Rev Structure; Rev Notes
A	AB	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Yavorsky
Drawn: T Cochran
Checked: T Kimura
Approved: A Borst
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

PEARL HIGHLANDS STATION
SHEET 5 OF 7

PARTIAL ELEVATION 1

Contract No.: DB–1200
CADD File: WF–G05–FP029
Drawing No.: FP029 Rev.: B
Scale: 3/16"=1'–0"
Page No.: 105 of 209

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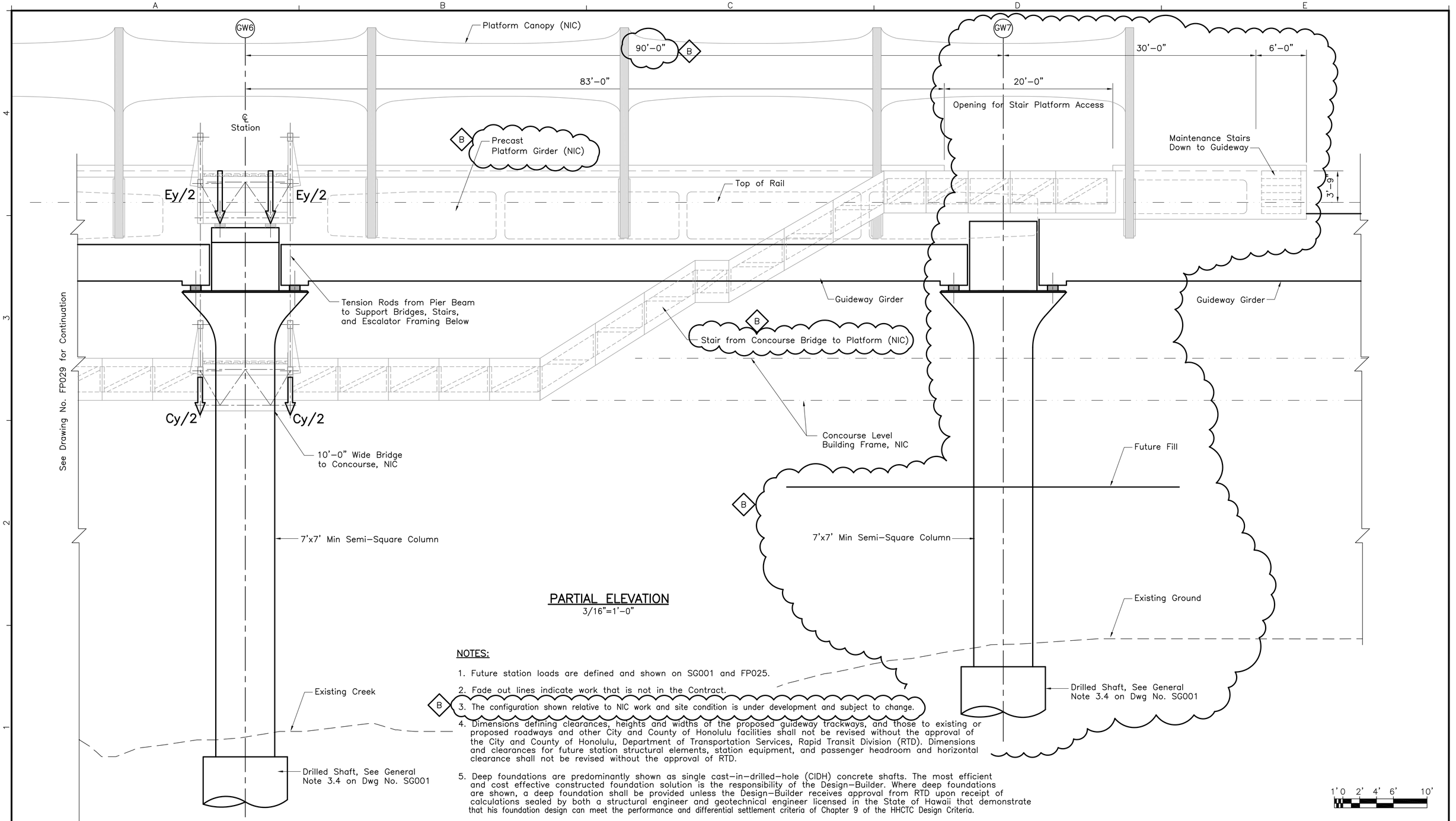

PARTIAL ELEVATION
3/16"=1'–0"

NOTES:

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1'0 2' 4' 6' 10'

Rev	By	Date	Description
B	AB	05–22–09	Rev Column Loc; Rev Structure; Rev Notes
A	AB	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Yavorsky
Drawn: T Cochran
Checked: T Kimura
Approved: A Borst
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

PEARL HIGHLANDS STATION
SHEET 6 OF 7

PARTIAL ELEVATION 2

Contract No.: DB–1200
CADD File: WF–G05–FP030
Drawing No.: FP030 Rev. B
Scale: 3/16"=1'–0"
Page No. 106 of 209

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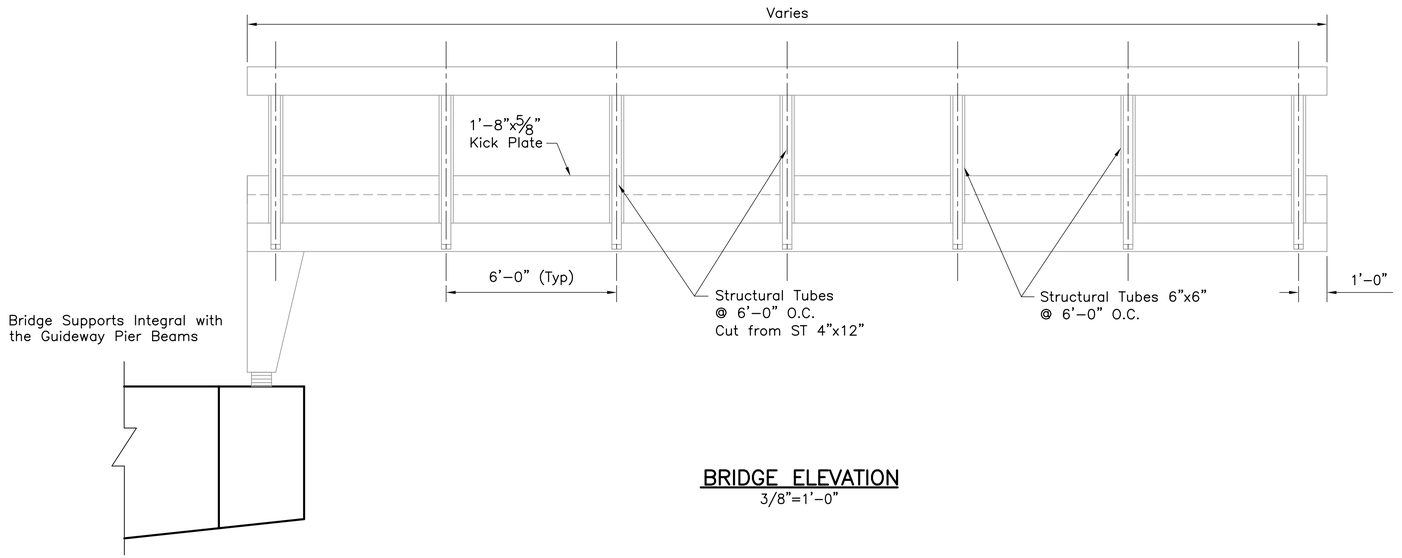
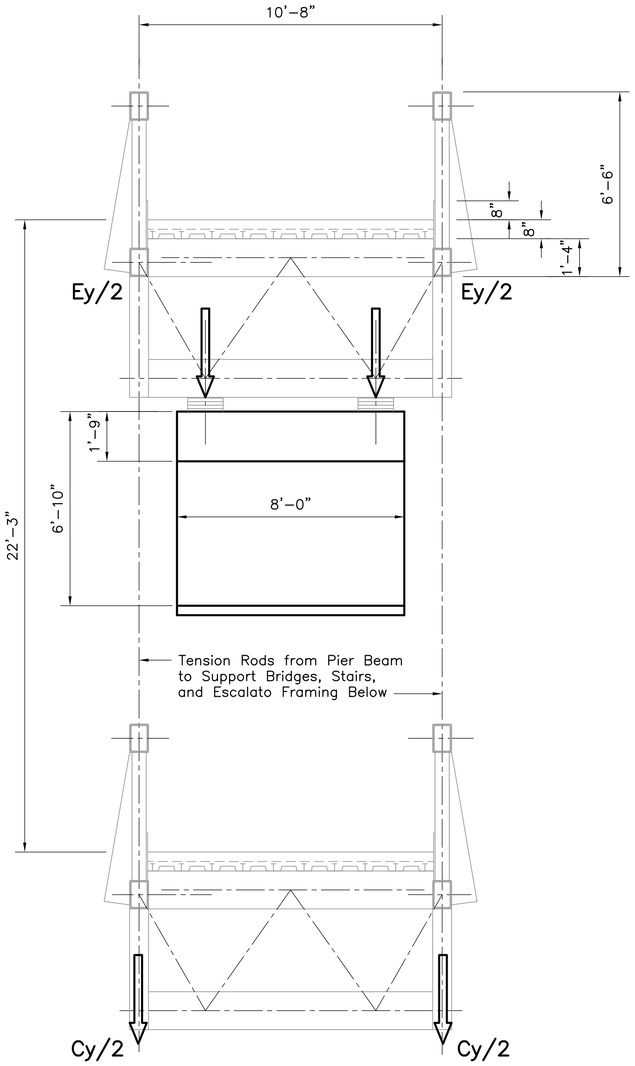


BRIDGE ELEVATION
3/8"=1'–0"



BRIDGE ELEVATION
3/8"=1'–0"

NOTES:

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1' 0 2' 4' 6'

Rev	By	Date	Description
B	AB	05–22–09	Revised Notes
A	AB	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Yavorsky
Drawn: T Cochran
Checked: T Kimura
Approved: A Borst
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

PEARL HIGHLANDS STATION
SHEET 7 OF 7

ACCESS BRIDGE DETAILS

Contract No.: DB–1200
CADD File: WF–G05–FP031
Drawing No.: FP031 Rev. B
Scale: 3/8"=1'–0"
Page No. 107 of 209

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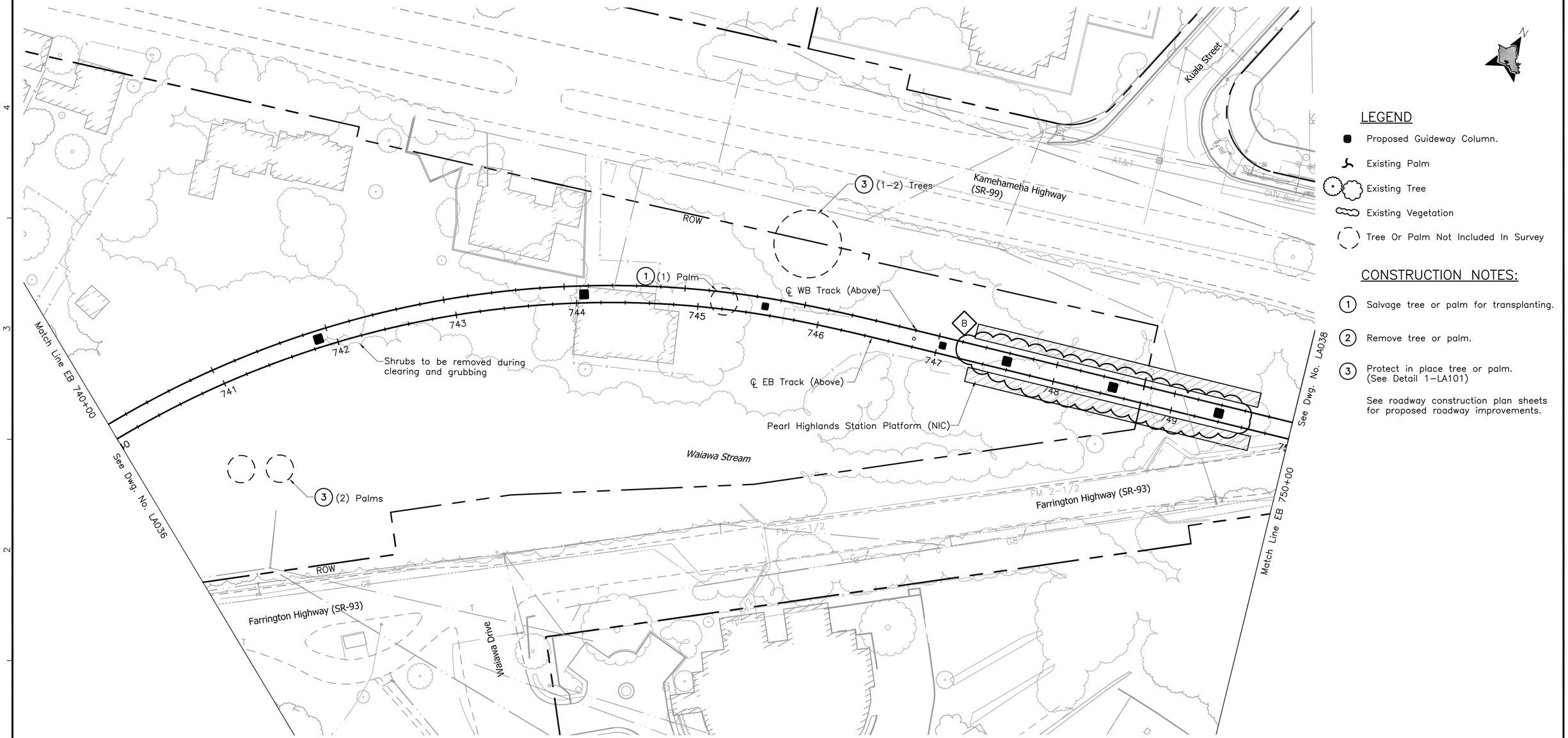

LEGEND

- Proposed Guideway Column.
- Existing Palm
- Existing Tree
- Existing Vegetation
- Tree Or Palm Not Included In Survey

CONSTRUCTION NOTES:

1. Salvage tree or palm for transplanting.
2. Remove tree or palm.
3. Protect in place tree or palm. (See Detail 1–LA101)

See roadway construction plan sheets for proposed roadway improvements.

40' 0 40'

Rev	By	Date	Description
B	AK	05–22–09	Piers Adjusted
A	AK	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Easterday
Drawn: M Weiss
Checked: D Easterday
Approved: A Kutsunai
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant: BELT COLLINS
PLANNING • CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
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Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819
T: 808.521.5361 • F: 808.538.7819
www.beltcollins.com

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WEST O'AHU/FARRINGTON DESIGN-BUILD

LANDSCAPE DEMOLITION PLAN

EB 740+00 TO EB 750+00

Contract No.: DB–1200
CADD File: WF–J02–LA037
Drawing No.: LA037 Rev. B
Scale: 1"=40'
Page No. 175 of 209

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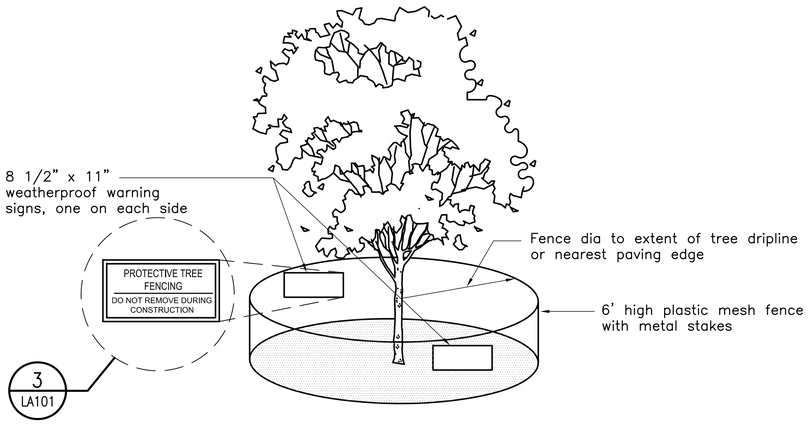
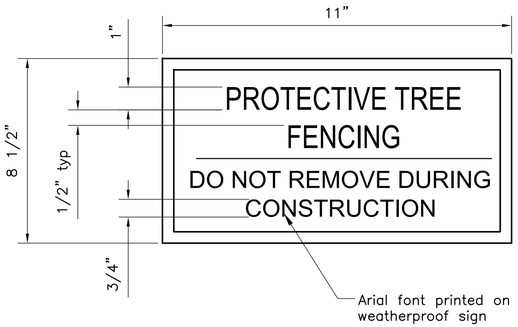
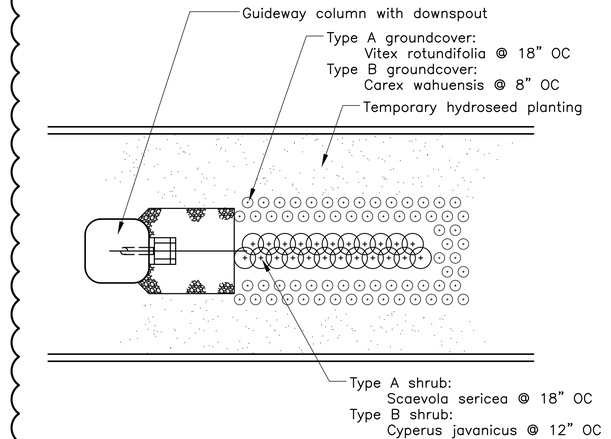


TREE/PALM PROTECTION 1 LA101
NOT TO SCALE



SIGN 3 LA101
NOT TO SCALE

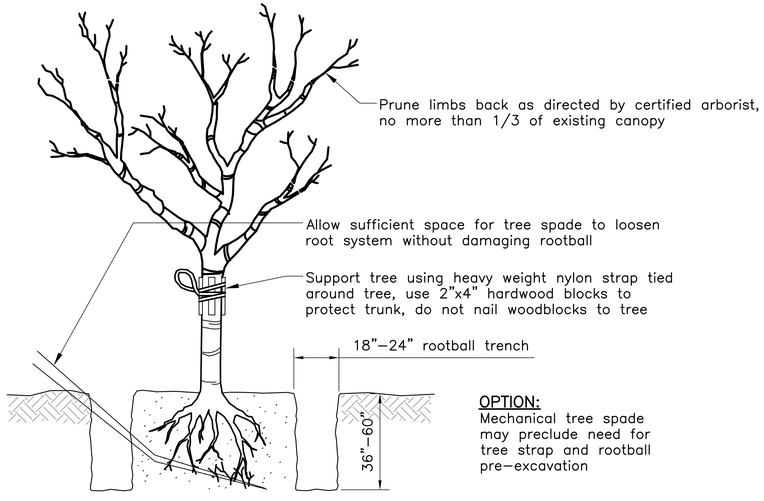


B

BIO–INFILTRATION PLAN 5 LA101
NOT TO SCALE

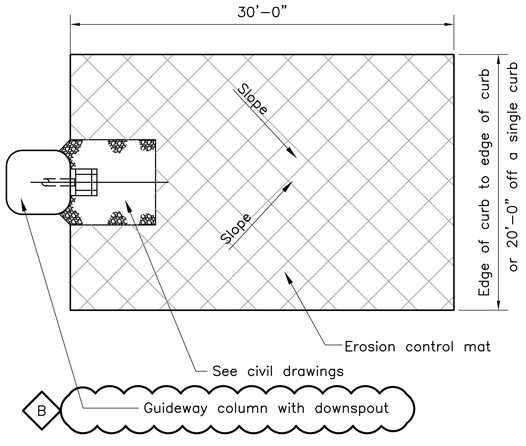
NOTES:

1. Mulch the root zone within dripline of all trees designated to remain in place with a minimum of 4" cover to protect against soil compaction.
2. Install tree protection fencing.
3. Minimize root pruning of structural roots. Any root pruning shall be clean cuts by proper equipment with no ripping or tearing.
4. If roots are pruned, prune canopy by similar amount to reduce shock to the tree.
5. Provide irrigation to all trees designated to be protected in place.
6. No stockpiling, storage or transport of materials, vehicles, or equipment within the dripline of trees designated to be protected in place.
7. Tree and palm demolition shall include demolition, removal and disposal, including rootball. Rootball excavation shall be backfilled and compacted with approved backfill material.
8. Planting areas shall be rough graded for temporary landscape condition. A 2% slope to median center shall be maintained to collect stormwater from guideway drains.

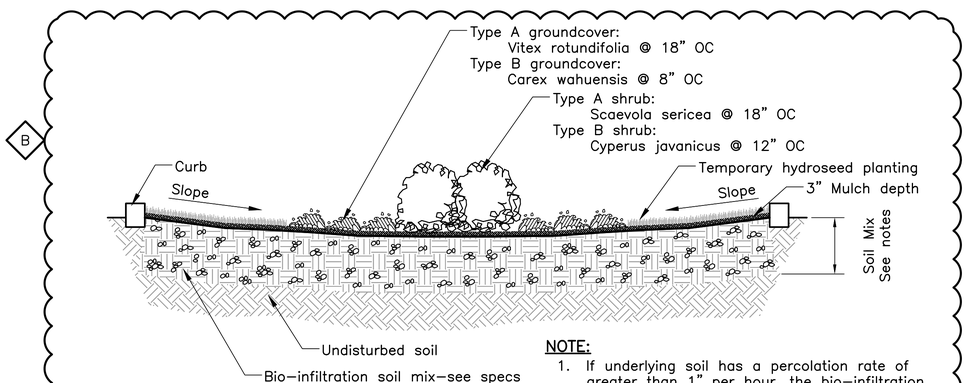


OPTION:
Mechanical tree spade may preclude need for tree strap and rootball pre–excavation

TREE SALVAGE 2 LA101
NOT TO SCALE



EROSION CONTROL MAT 4 LA101
NOT TO SCALE



BIO–INFILTRATION SECTION 6 LA101
NOT TO SCALE

NOTE:

1. If underlying soil has a percolation rate of greater than 1" per hour, the bio–infiltration soil mix will be 24" depth. If the underlying soil percolation rate is less than 1" per hour the depth will be 36".
2. Bio–infiltration soil mix: 30% sandy loam, 30% sand, and 40% organic compost (heated to destroy weed seed).
3. Bio–infiltration planting is permanent, while hydroseed is temporary.
4. Bio–infiltration areas are located adjacent only to streams (see civil plans for locations). Planting at each site should alternate between Type A and Type B.

Rev	By	Date	Description
B	AK	05–22–09	Bio–Infiltration Details
A	AK	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Easterday
Drawn: M Weiss
Checked: D Easterday
Approved: A Kutsunai
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

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WEST O'AHU/FARRINGTON DESIGN BUILD

LANDSCAPE PLANTING DETAILS

Contract No.: DB–1200
CADD File: WF–J06–LA101
Drawing No: LA101 Rev. B
Scale: AS NOTED
Page No. 177 of 209

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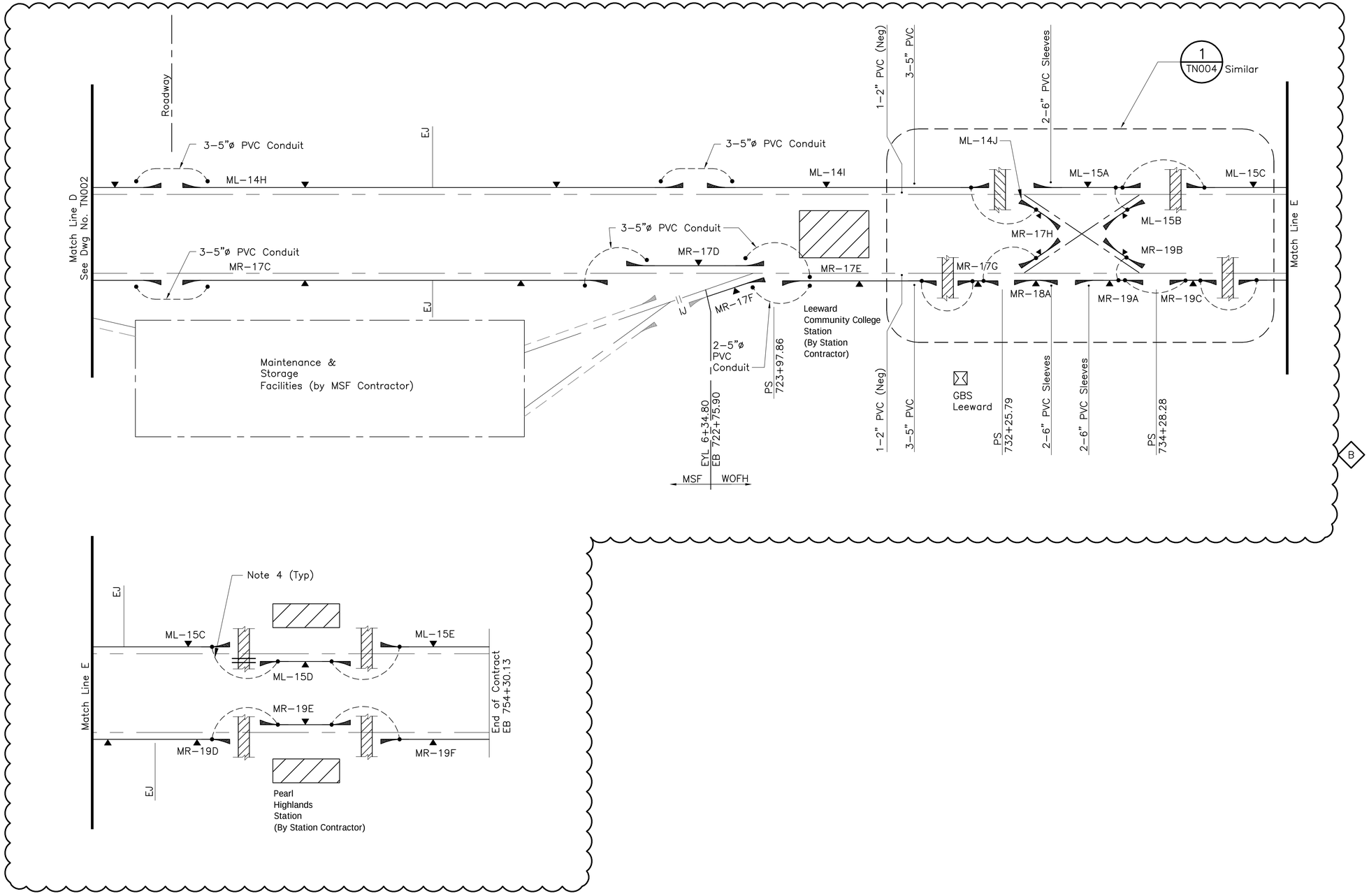

NOTES

1. For notes see dwg TN001.

Rev	By	Date	Description
B	SDS	08–05–09	Updated PS, EJ's & anchors
A	SDS	04–03–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: L Mayola
Drawn: O Kurnovskaya
Checked: A Patel
Approved: S Stoilov
Date: 04–03–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

CONTACT RAIL INSTALLATION
CONTACT RAIL SCHEMATIC LAYOUT

SHEET 3 OF 3

Contract No.: DB–1200
CADD File: WF–N06–TN003
Drawing No: TN003 Rev. B
Scale: As Noted
Page No. 186 of 209

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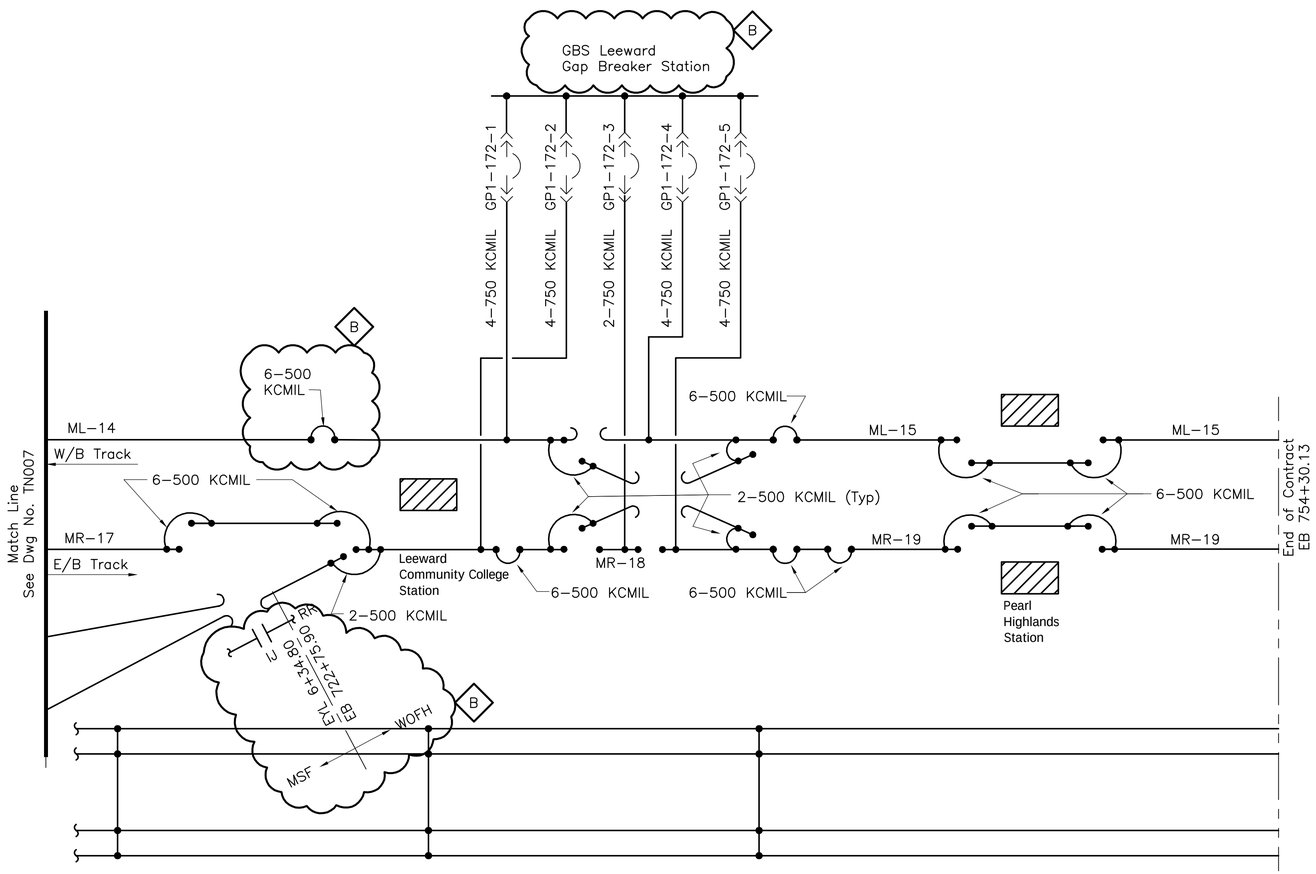
NOTES

1. Refer to drawing TN006.



Rev	By	Date	Description
B	SDS	08-05-09	Updated Master Single Line Diagram
A	SDS	04-03-09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: L Mayola
Drawn: O Kurnovskaya
Checked: A Patel
Approved: S Stoilov
Date: 04-03-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

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1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

MASTER SINGLE LINE DIAGRAM

SHEET 3 OF 3

Contract No.: DB-1200
CADD File: WF-N06-TN008
Drawing No: TN008 Rev. B
Scale: As Noted
Page No. 191 of 209

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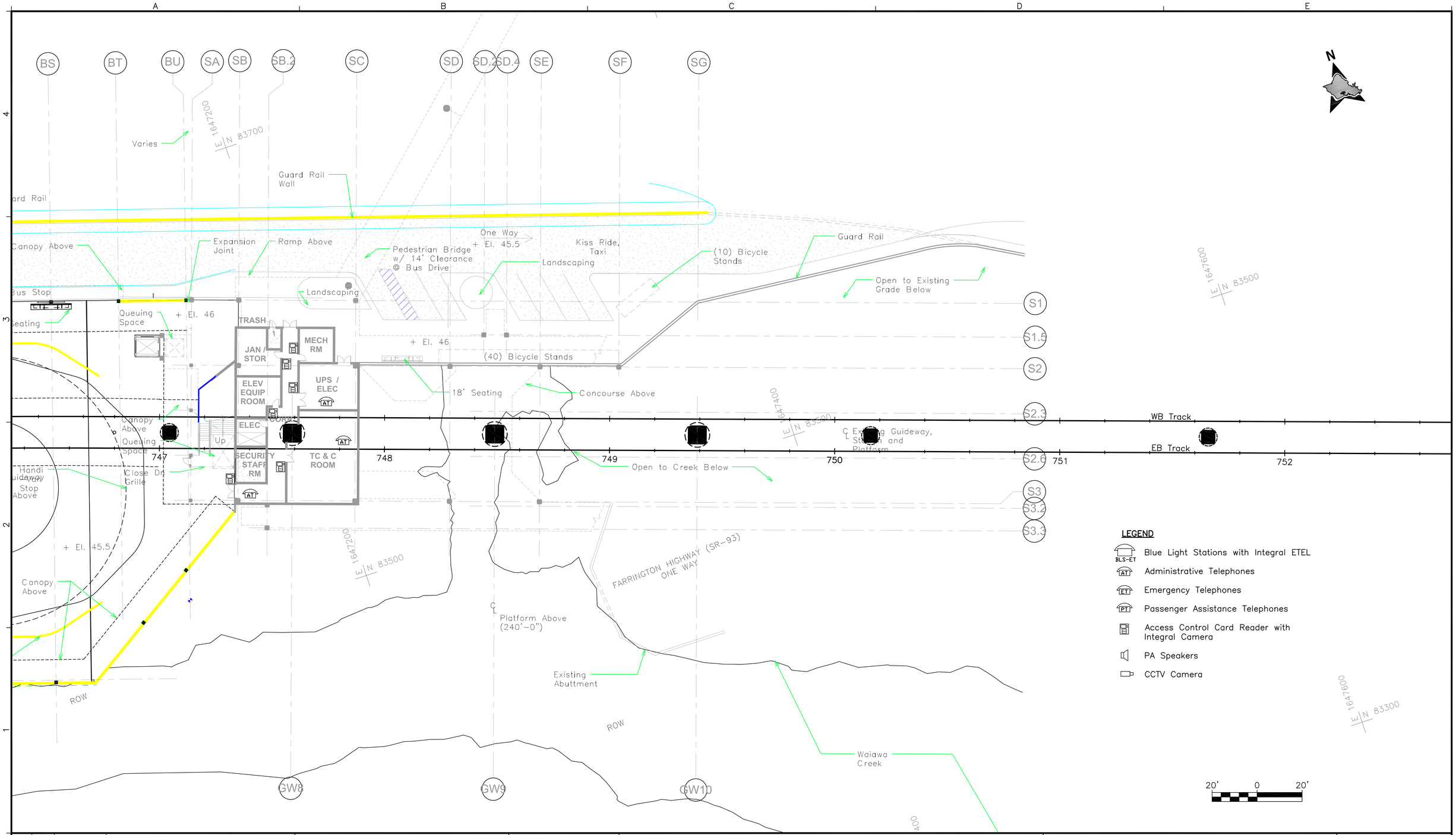


LEGEND

- BLS-ET — Blue Light Stations with Integral ETEL
- AT — Administrative Telephones
- ET — Emergency Telephones
- PT — Passenger Assistance Telephones
- Access Control Card Reader with Integral Camera
- PA Speakers
- CCTV Camera

Rev	By	Date	Description
A	HB	08–17–09	Issued For Proposal

RFP DRAWING
NOT FOR CONSTRUCTION

Designed: H Bowie
Drawn: C Jamison
Checked: B Russo
Approved: H Bowie
Date: 07–31–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813
Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

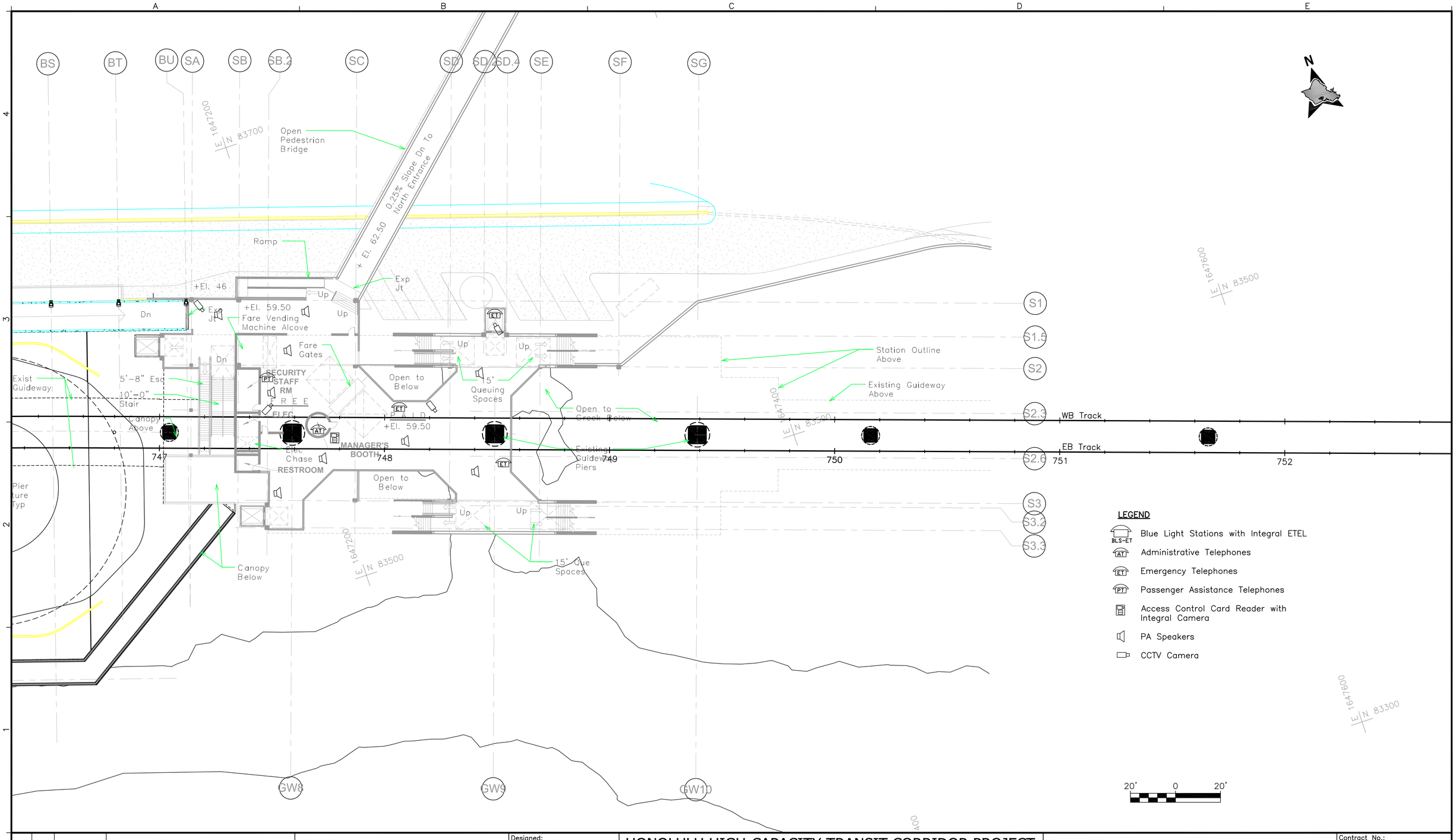
CORE SYSTEMS

PEARL HIGHLANDS STATION COMMUNICATIONS PLAN

GROUND LEVEL

Contract No.: MI–920
CADD File: CS–R06–CM209
Drawing No.: CM209 Rev. A
Scale: 1" = 20'
Page No. 141 of 195

2009–08–07 2:02 PM K:\CADD\Architectural\CS–R06–CM209.dwg



Rev	By	Date	Description
A	HB	08-17-09	Issued For Proposal

RFP DRAWING
NOT FOR CONSTRUCTION

Designed: H Bowie
Drawn: C Jamison
Checked: B Russo
Approved: H Bowie
Date: 07-31-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

CORE SYSTEMS

PEARL HIGHLANDS STATION COMMUNICATIONS PLAN

CONCOURSE LEVEL

Contract No.: MI-920
CADD File: CS-R06-CM210
Drawing No: CM210
Rev. A
Scale: 1" = 20'
Page No. 142 of 195

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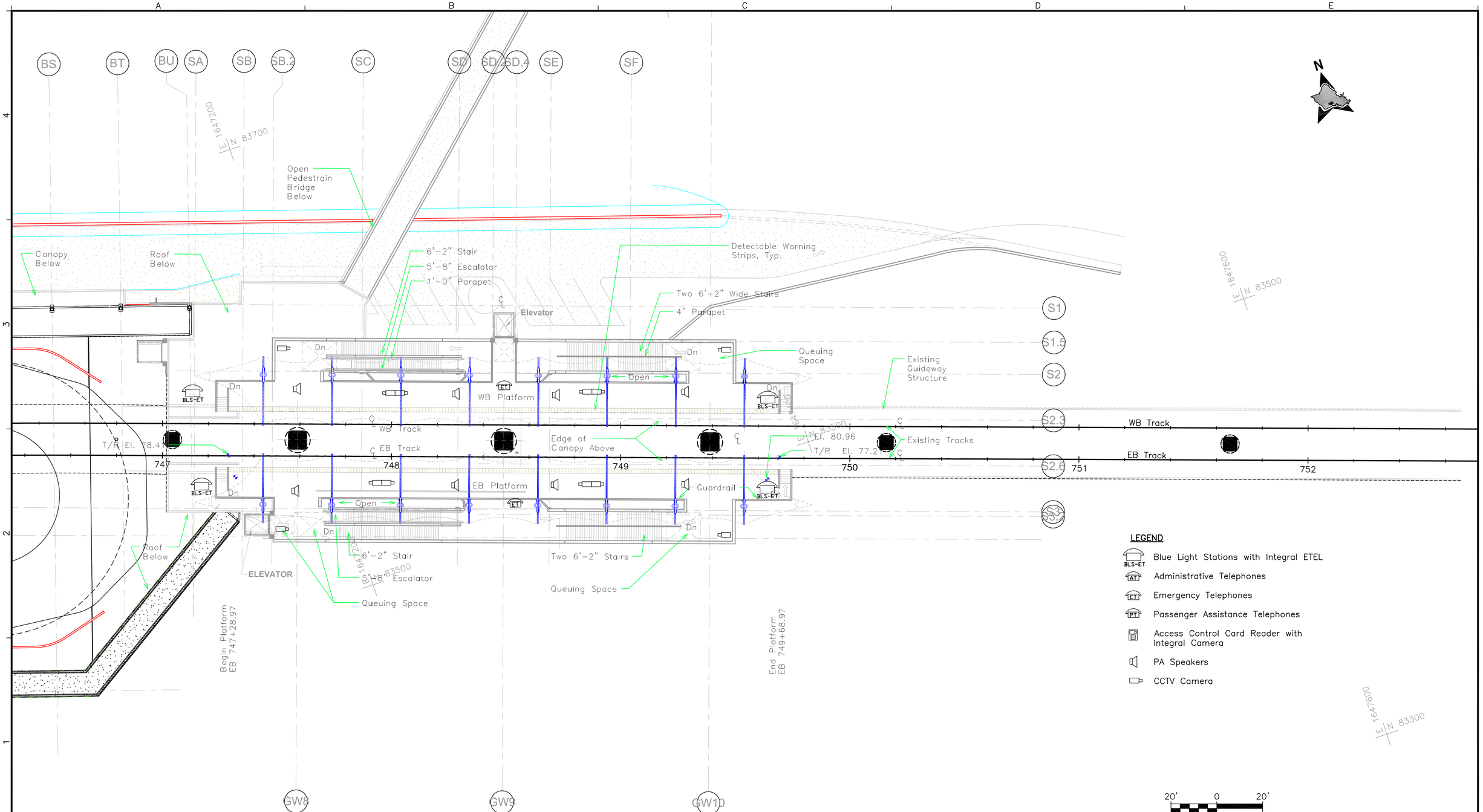

Rev	By	Date	Description
A	HB	08-17-09	Issued For Proposal

RFP DRAWING
NOT FOR CONSTRUCTION

Designed: H Bowie
Drawn: C Jamison
Checked: B Russo
Approved: H Bowie
Date: 07-31-09

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CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

CORE SYSTEMS

PEARL HIGHLANDS STATION COMMUNICATIONS PLAN

PLATFORM LEVEL

Contract No.: MI-920
CADD File: CS-R06-CM211
Drawing No.: CM211 Rev. A
Scale: 1" = 20'
Page No. 143 of 195

2009-08-07 2:04 PM K:\CADD\Architectural\CS-R06-CM211.dwg

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PP BA BC BD BE BF BG BH BJ BK BL BM BN BP BR BS BT BU SA

B1

E 1646800 N 83900

E 1647000 N 83700

E 1646800 N 83700

E 1647200

E 1646800 N 83500

+ El. 60.50

SLOPE

Pedestrian Bridge from Parking to Concourse

+El. 4

Dn

Exp Jt

2" EJ Joint

Exist Guideway

5'-8" Esc

10'-0" Stair

Canopy Above

746

747

745

744

743

742

741

Existing Guideway Pier and Structure Above – Typ

Canopy Below

Roof Drains

2" EJ Joint

WB Track

EB Track

B4

GW4

GW5

GW6

GW7

20' 0 20'

LEGEND

- BLS-ET — Blue Light Stations with Integral ETEL
- AT — Administrative Telephones
- ET — Emergency Telephones
- PT — Passenger Assistance Telephones
- Access Control Card Reader with Integral Camera
- PA Speakers
- CCTV Camera

Rev	By	Date	Description
A	HB	08–17–09	Issued For Proposal

RFP DRAWING NOT FOR CONSTRUCTION

Designed: H Bowie
Drawn: C Jamison
Checked: B Russo
Approved: H Bowie
Date: 07–31–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

CITY & COUNTY OF HONOLULU - DEPARTMENT OF TRANSPORTATION SERVICES - RAPID TRANSIT DIVISION

Prime Consultant: PB PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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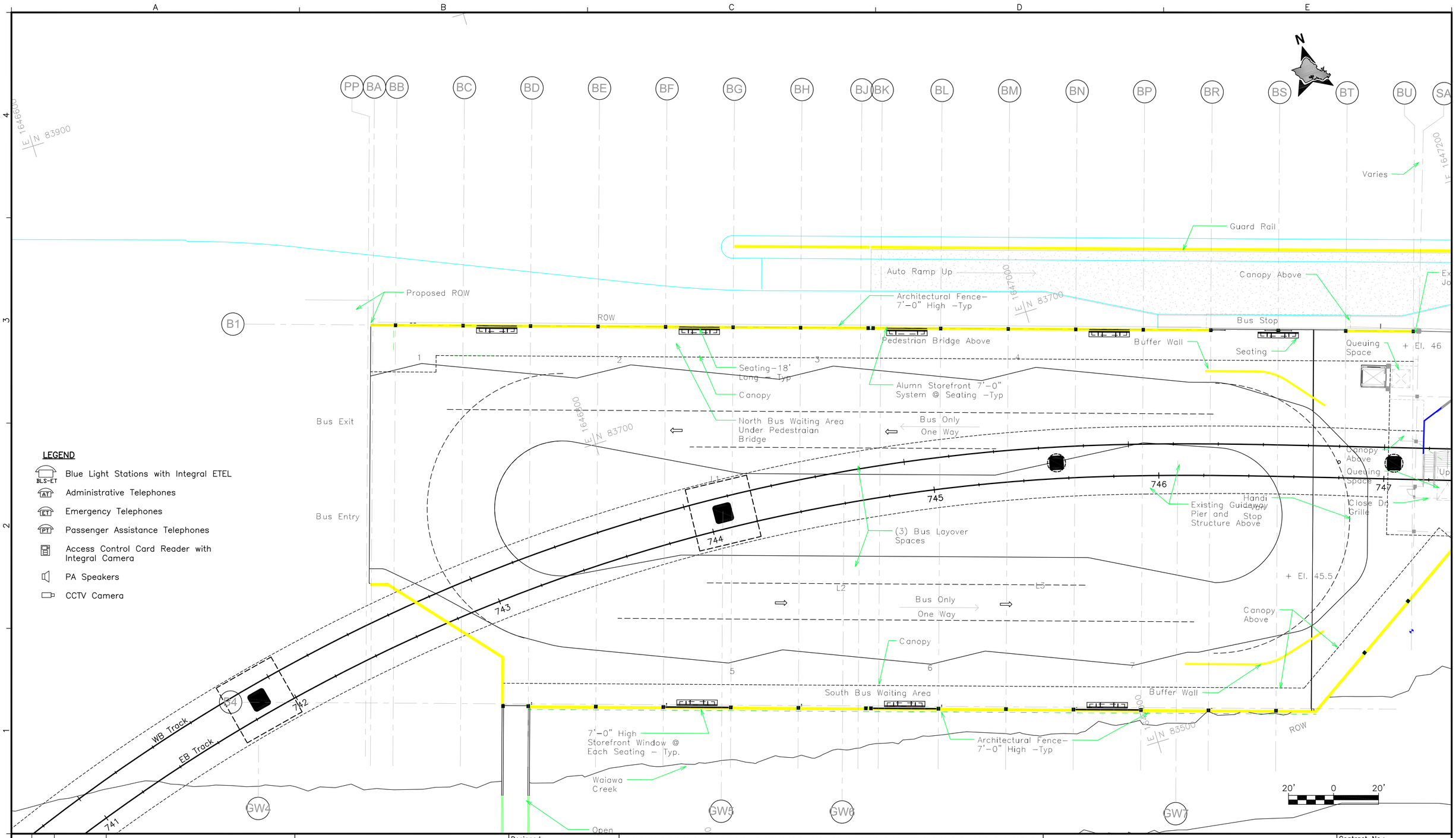
CORE SYSTEMS

PEARL HIGHLANDS STATION BUS TRANSIT CENTER

GROUND LEVEL

Contract No.: MI–920
CADD File: CS–R06–CM212
Drawing No: CM212 Rev. A
Scale: 1" = 20'
Page No. 144 of 195

2009–08–07 2:09 PM K:\CADD\Architectural\CS–R06–CM212.dwg



LEGEND

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CORE SYSTEMS

PEARL HIGHLANDS STATION BUS TRANSIT CENTER

PEDESTRIAN BRIDGE

Contract No.: MI–920
CADD File: CS–R06–CM213
Drawing No: CM213 Rev. A
Scale: 1" = 20'
Page No. 145 of 195

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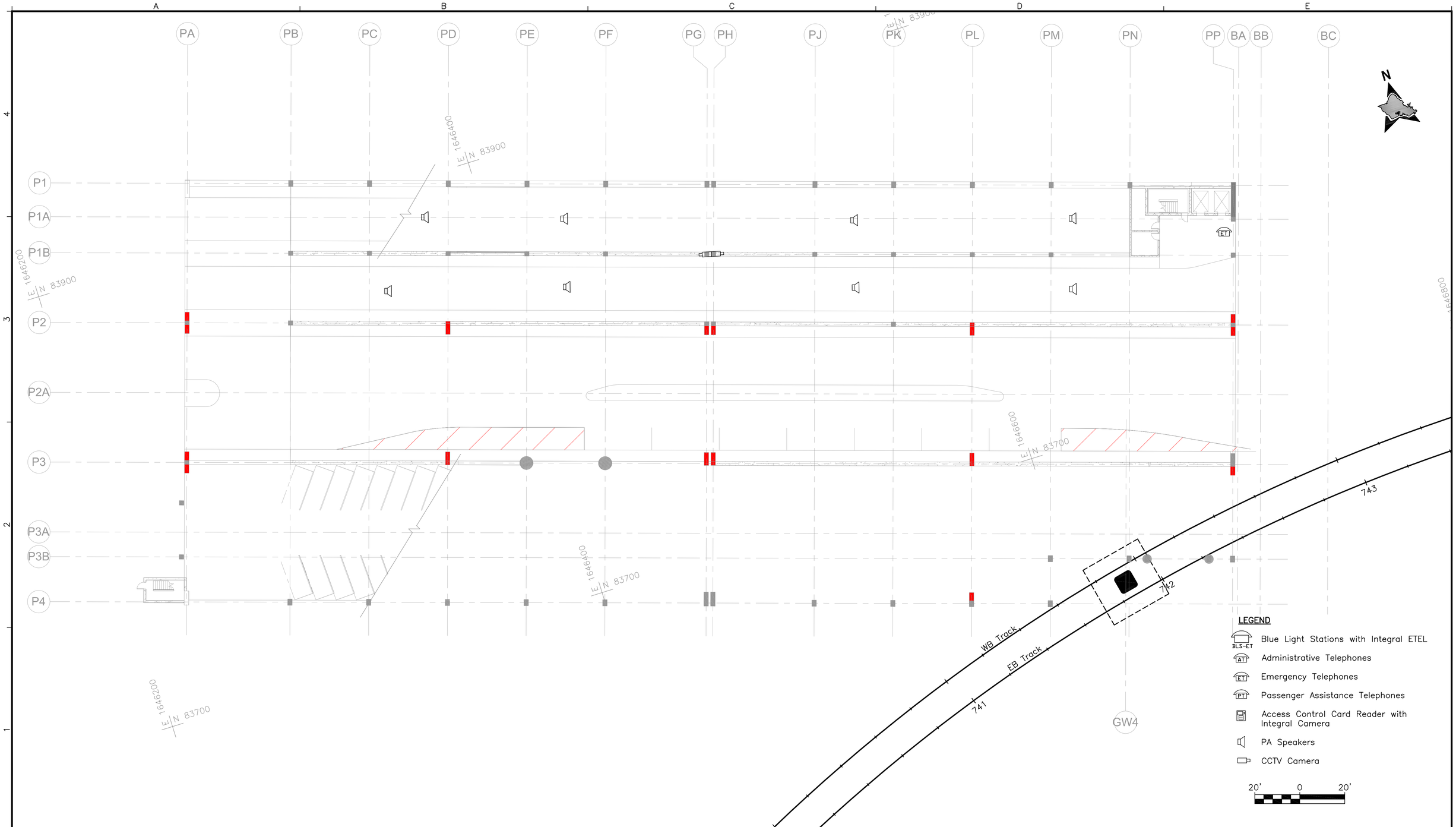

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CORE SYSTEMS

PEARL HIGHLANDS PARKING DECK
COMMUNICATIONS PLAN

LEVEL 1

Contract No.: MI-920
CADD File: CS-R06-CM214
Drawing No: CM214
Rev. A
Scale: 1" = 20'
Page No. 146 of 195

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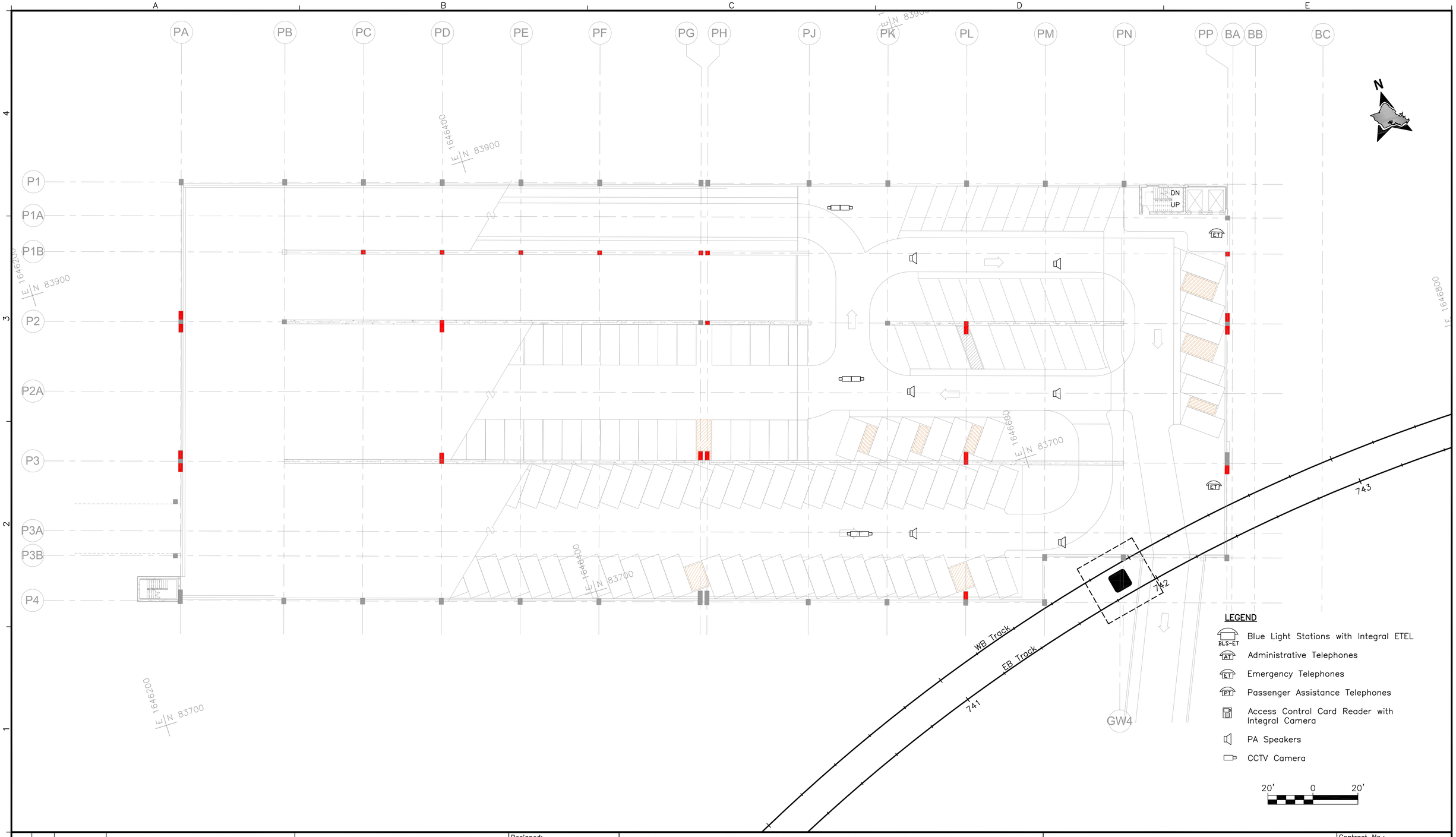

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CORE SYSTEMS

PEARL HIGHLANDS PARKING DECK COMMUNICATIONS PLAN

LEVEL 2

Contract No.: MI–920
CADD File: CS–R06–CM215
Drawing No.: CM215
Rev.: A
Scale: 1" = 20'
Page No.: 147 of 195

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A B C D E

PA PB PC PD PE PF PG PH PJ PK PL PM PN PP BA BB BC

1 2 3 4

P1 P1A P1B P2 P2A P3 P3A P3B P4

E 1646400 N 83900

E 1646800 N 83900

E 1646600 N 83700

E 1646200 N 83700

GW4

WB Track

EB Track

741 742 743

N

LEGEND

- BLS-ET — Blue Light Stations with Integral ETEL
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- PA Speakers
- CCTV Camera

20' 0 20'

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CORE SYSTEMS

PEARL HIGHLANDS PARKING DECK COMMUNICATIONS PLAN

LEVEL 3

Contract No.: MI–920
CADD File: CS–R06–CM216
Drawing No: CM216 Rev. A
Scale: 1" = 20'
Page No. 148 of 195

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A B C D E

PA PB PC PD PE PF PG PH PJ PK PL PM PN PP BA BB BC

4 3 2 1

P1 P1A P1B P2 P2A P3 P3A P3B P4

E 1646400 N 83900

E 1646200 N 83900

E 1646800

E 1646600 N 83700

E 1646400 N 83700

E 1646200 N 83700

ET

743

742

741

WB Track

EB Track

N

LEGEND

- BLS-ET — Blue Light Stations with Integral ETEL
- AT — Administrative Telephones
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- Access Control Card Reader with Integral Camera
- PA Speakers
- CCTV Camera

20' 0 20'

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Date: 07–31–09

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Subconsultant:

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CORE SYSTEMS

PEARL HIGHLANDS PARKING DECK COMMUNICATIONS PLAN

LEVEL 4 THRU 7

Contract No.: MI–920
CADD File: CS–R06–CM217
Drawing No.: CM217 Rev. A
Scale: 1" = 20'
Page No. 149 of 195

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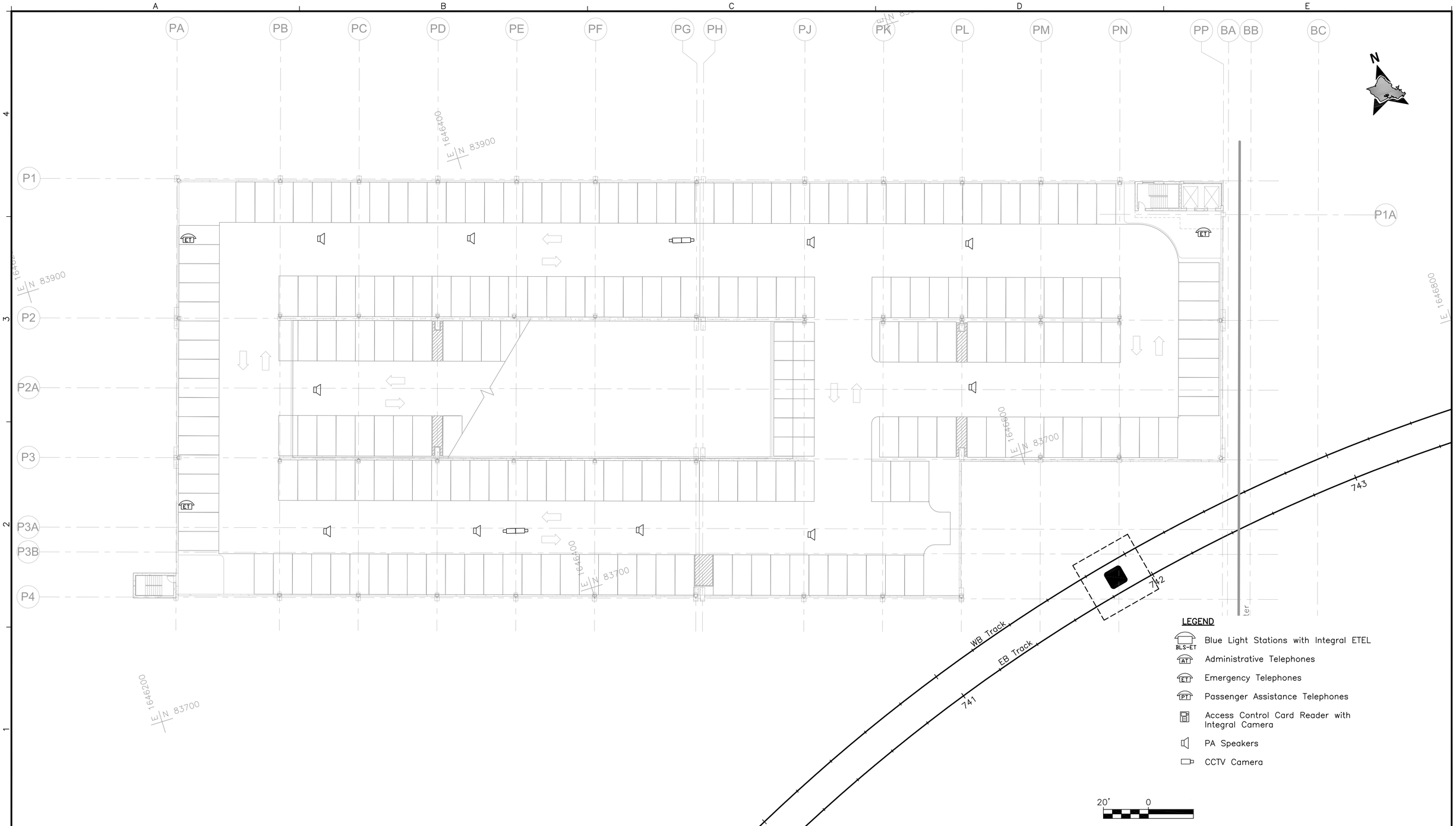

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A	HB	08-17-09	Issued For Proposal

RFP DRAWING
NOT FOR CONSTRUCTION

Designed: H Bowie
Drawn: C Jamison
Checked: B Russo
Approved: H Bowie
Date: 07-31-09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
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Prime Consultant:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 2250 – Honolulu, HI 96813

Subconsultant:

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CORE SYSTEMS

PEARL HIGHLANDS PARKING DECK
COMMUNICATIONS PLAN

LEVEL 8

Contract No.: MI-920
CADD File: CS-R06-CM218
Drawing No: CM218
Rev. A
Scale: 1" = 20'
Page No. 150 of 195

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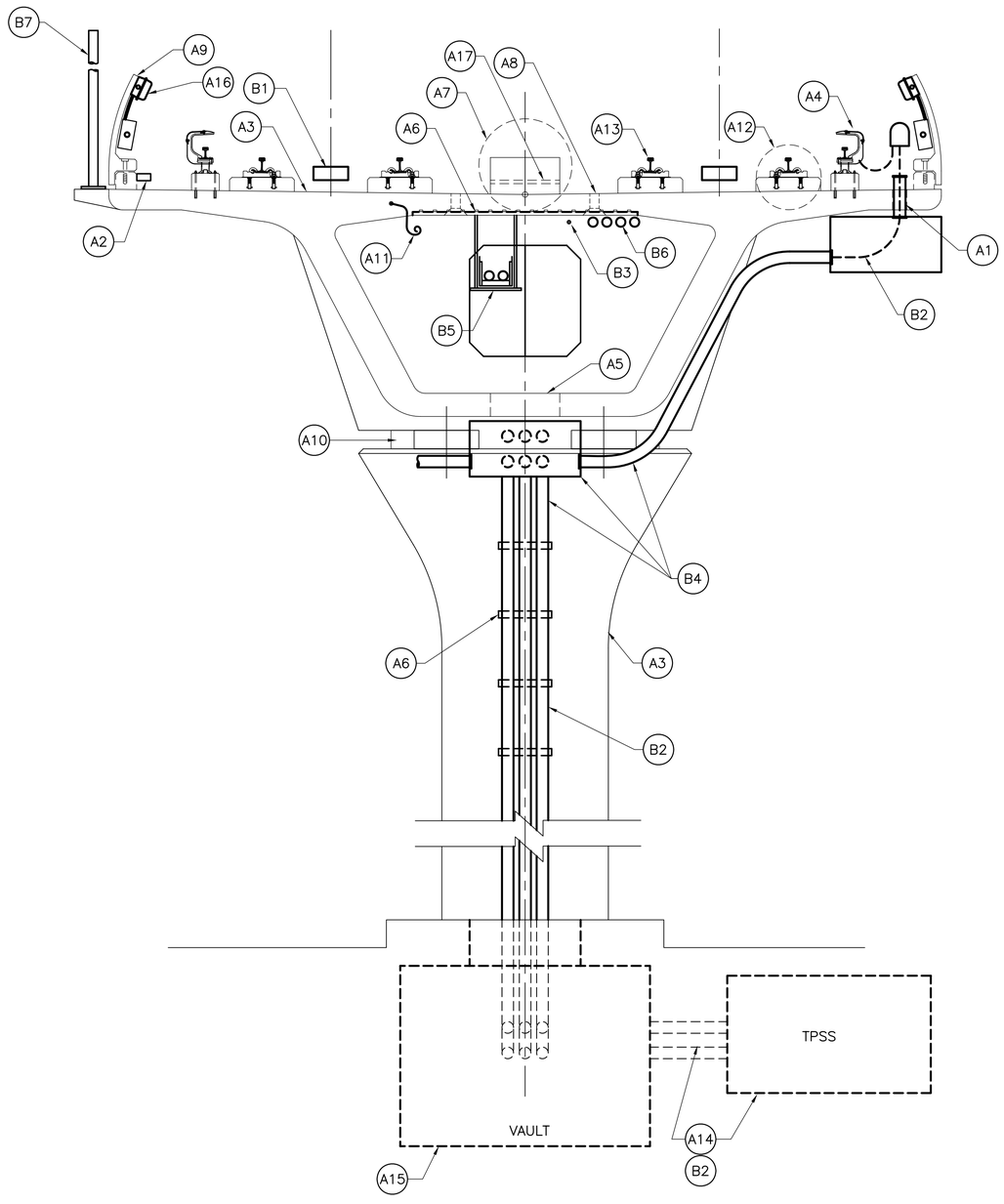
GUIDEWAY CONTRACTOR

- (A1) Sleeves in Box Girder for Traction Power Cabling
- (A2) Stray Current Test Station
- (A3) Precast Segmental Box Girder Guideway Foundations, Substructure, Columns, Bents, Superstructure and all Associated Permanent and Temporary Works
- (A4) Contact Rail Layout and Installation
- (A5) Access Hatch
- (A6) Unistrut for Support of Cable Trays and Conduits
- (A7) Emergency Walkway
- (A8) Knock Outs
- (A9) Acoustic Barrier
- (A10) Bearings, Tie–downs/Restrainers/Shock Transissions Units, Expansion Joints, and all other associated Guideway appurtenances.
- (A11) Stray Current and Grounding Cables
- (A12) Cast–in–Place Rail Plinths, DF Fasteners, Inserts and all related appurtenances.
- (A13) Continuously welded rail, and all related appurtenances.
- (A14) TPSS Foundation and Conduits to Guideway and to HECO Feeder
- (A15) Traction Electrification Vault
- (A16) Guideway Lighting (See Directive Drawings ES001, ES002 and ES003)
- (A17) Sleeves for Crossbonds

CORE SYSTEMS CONTRACTOR

- (B1) Impedance Bonds
- (B2) Feeder Cabling
- (B3) Longitudinal Grounding
- (B4) Conduits and Pull Box for Traction Power Feeders
- (B5) Cable Tray, Cable Tray Supports and Conduits
- (B6) Conduits
- (B7) 15' pole for Wireless Mesh Access Point



Rev	By	Date	Description
A	DG	05–22–09	Issued For Bid

BID DOCUMENT
NOT FOR CONSTRUCTION

Designed: D Gobelle
Drawn: C Jamison
Checked: M Becher
Approved: M Hall
Date: 05–22–09

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT
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Subconsultant:

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WEST O'AHU/FARRINGTON DESIGN-BUILD

SYSTEM INTEGRATION
CONTRACT WORK DELINEATION

AERIAL GUIDEWAY

Contract No.: DB–1200
CADD File: WF–V11–SY001
Drawing No: SY001 Rev. A
Scale: NTS
Page No. 209A of 209

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