

# City of Tacoma Environmental Services Department



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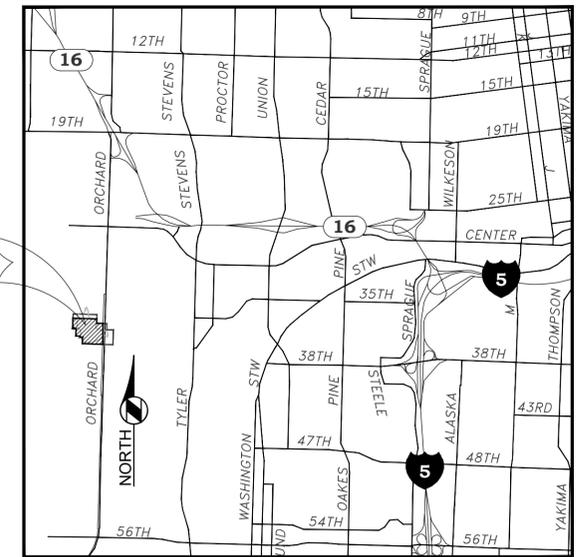
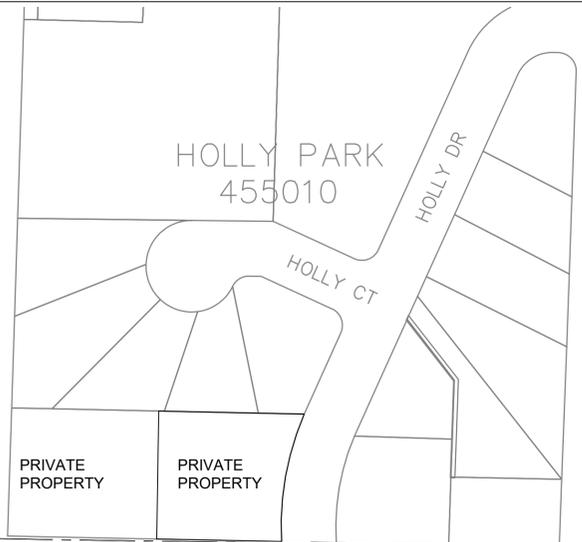
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## *LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II*

*Project No. ENV-03031-01  
Spec Number ES24-0258F*

**GENERAL NOTES:**

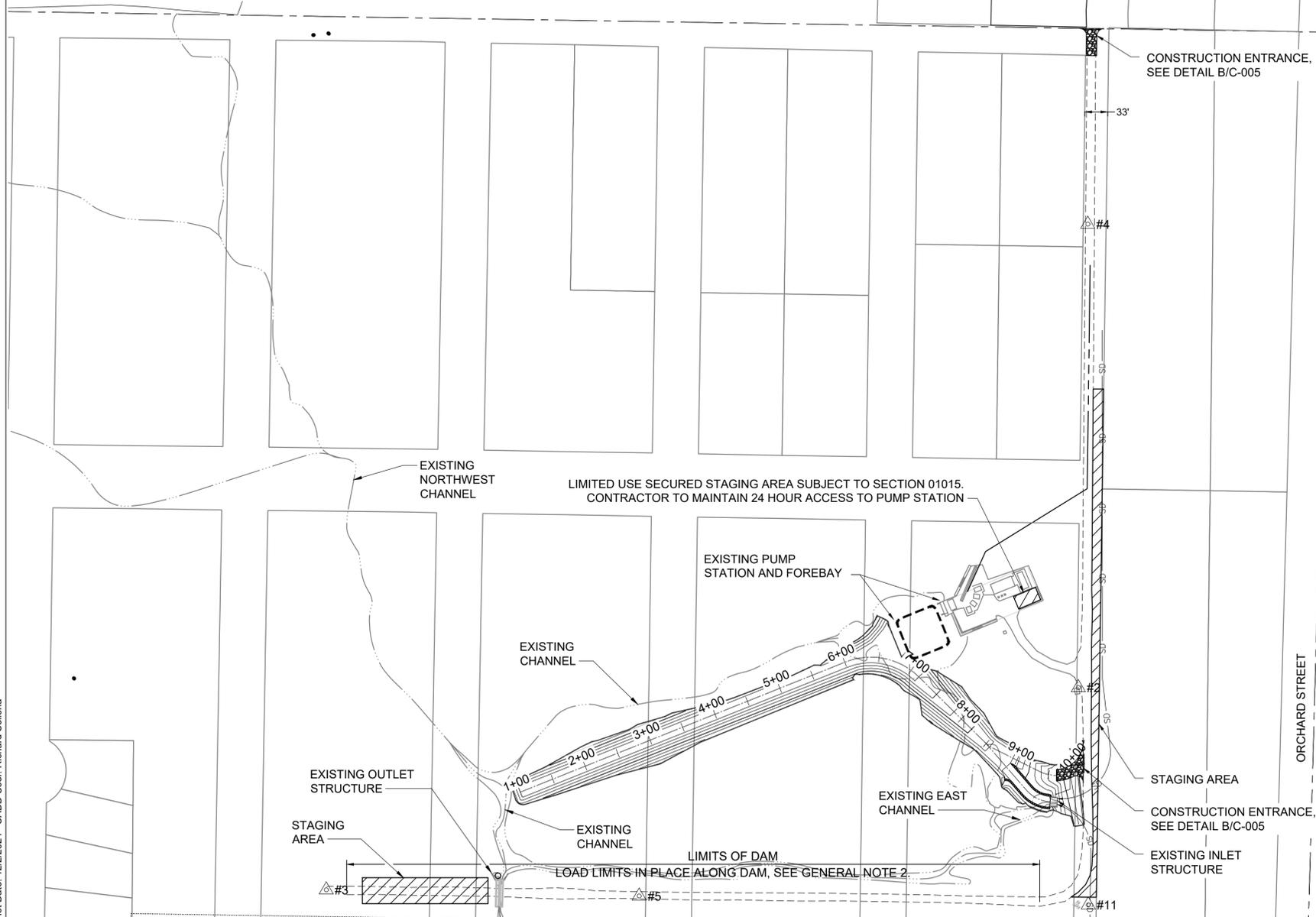
1. CONTRACTOR USE OF STAGING AND STORAGE AREAS IS SUBJECT TO OWNER APPROVAL.
2. NO GENERAL STAGING SHALL OCCUR ALONG THE DAM. WEST OF THE OUTLET STRUCTURE, STAGING MAY INCLUDE BYPASS PUMPS, BAKER TANKS, AND/OR OTHER TRAILER-MOUNTED TREATMENT EQUIPMENT PROVIDED SURCHARGE LOADS ARE CONSISTENT WITH THE LIMITATIONS PROVIDED IN THE SPECIFICATIONS, OR AS OTHERWISE APPROVED IN THE DAM LOADING PLAN. CONTRACTOR SHALL SUBMIT A DAM LOADING PLAN, PREPARED BY A LICENSED PROFESSIONAL ENGINEER, FOR APPROVAL PRIOR TO MOBILIZING EQUIPMENT ACROSS THE DAM. EQUIPMENT REQUIRING CONCENTRATED POINT LOADS PROXIMATE TO THE SLOPE CREST (E.G., OUTRIGGERS) MAY NOT BE APPROVED.
3. STAGING AND STORAGE AREAS SHALL BE DELINEATED USING HIGH VISIBILITY FENCE.
4. UPON COMPLETION OF CONSTRUCTION ALL CONTRACTOR STAGING AND STORAGE AREAS SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS.
5. DISTURBED AREAS SHALL BE INCLUDED IN THE CONTRACTORS STORM WATER POLLUTION PREVENTION PLAN. PROPERTIES AND WATERWAYS DOWNSTREAM OF DISTURBED AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENT DEPOSIT FROM SURFACE RUNOFF.
6. ALL WORK WITHIN THE BASIN SHALL OCCUR WITH THE OUTLET PIPES CLOSED OR PLUGGED TO ISOLATE THE BASIN FROM LEACH CREEK PER ARMY CORPS OF ENGINEERS PERMIT NWS-2011-859-WRD



**VICINITY MAP**  
SCALE: 1" = 5000'

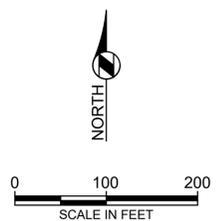
**DRAWING INDEX**

SHT NO.	DWG NO.	DRAWING TITLE
<b>GENERAL</b>		
1	G-001	PROJECT LOCATION, VICINITY MAP, AND DRAWING INDEX
2	G-002	LEGEND AND ABBREVIATIONS
<b>DEMOLITION</b>		
3	D-001	OUTLET STRUCTURE DEMOLITION PLAN
<b>CIVIL</b>		
4	C-001	TEMPORARY EROSION AND SEDIMENT CONTROL, BYPASS, GRADING AND LAYOUT
5	C-002	INFLOW CHANNEL REROUTING AND ACCESS RAMP
6	C-003	GRADING SECTIONS
7	C-004	PLANTING PLAN AND DETAILS
8	C-005	SITE DETAILS
<b>STRUCTURAL</b>		
9	S-001	OUTLET STRUCTURE GENERAL STRUCTURAL NOTES, ABBREVIATIONS AND LEGEND
10	S-002	OUTLET STRUCTURE PLANS
11	S-003	OUTLET STRUCTURE SECTIONS AND DETAILS - 1



**LOCATION MAP**  
SCALE: 1" = 100'

SURVEY CONTROL POINTS				
ID	NORTHING	EASTING	ELEVATION	DESCRIPTION
#2	696,458.618	1,141,906.423	225.73	"X" NE COR VAULT
#3	696,169.796	1,140,829.824	218.41	BRASSIE/CONC W END DIKE
#4	697,120.491	1,141,919.828	270.63	BRASSIE/CONC ON IDAHO
#5	696,161.011	1,141,277.701	218.03	R&C APPROX CL GRAVEL RD
#11	696,148.402	1,141,920.544	218.51	SBM IDAHO & DIKE



HORIZONTAL DATUM: STATE PLANE GRID COORDINATE SYSTEM (NAD83/91) SOUTH ZONE.  
VERTICAL DATUM: NGVD 29



Path: C:\bc\dwg\2882766 File Name: 158869-G-001.dwg Plot Date: 12/2/2024 CADD User: Richard Sellona

		AT FULL SCALE 0 1/2 1 (IF NOT 1" SCALE ACCORDINGLY)		FINAL CONSTRUCTION CHECKED DATE: 12/3/2024 SCALE: AS NOTED	CITY OF TACOMA ENVIRONMENTAL SERVICES DEPARTMENT LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II CIVIL PROJECT LOCATION, VICINITY MAP AND DRAWING INDEX	DRAWING NO. G-001
		NO REVISION DATE APPD		DESIGNED: VH CHECKED: JF PROJECT NAME:		WBS NO. ES24-0258F ENV-03031-01 SHEET NO. SHEET 1 of 11

**LEGEND**

	SLOPE STABILIZATION (COIR MAT WITH EMERGENT MITIGATION PLANTINGS)
	CRUSHED SURFACING
	EXISTING EQUIPMENT OR MATERIALS TO BE REMOVED
	WETLAND HYDROSEED MIX
	EMERGENT MITIGATION PLANTINGS
	RIP-RAP
	NEW FACILITIES (SOLID)
	EXISTING (OR SCREENED)
	PROPERTY LINE
	CENTERLINE
	EDGE OF PAVEMENT
	TEMPORARY SILT FENCE
	EXISTING STORM DRAIN
	EXISTING CATCH BASIN
	EXISTING UNDERGROUND POWER
	FINISH GRADE CONTOURS
	EXISTING CONTOURS
	EXISTING SPOT ELEVATION
	PROPOSED SPOT ELEVATION
	PROPOSED SPOT ELEVATION W/ STATION AND OFFSET
	FLOWLINE
	SLOPE (3 HOR. TO 1 VERT.)
	SURVEY MONUMENT
	SURVEY CONTROL POINT
	KEY NOTE DESIGNATION
	MONITORING WELL

**ABBREVIATIONS**

AL	ALUMINUM, ALUM	OC	ON CENTERS
APPX	APPROXIMATE(LY)	OD	OUTSIDE AIR DIAMETER
ASSY	ASSEMBLY	OPGN	OPENING
AVE	VENUE	PVT	PAVEMENT
BLDG	BUILDING	R	RADIUS, RISER
BOP	BOTTOM OF PIPE, BACK OF PIPE	RAD	RADIUS
BOT	BOTTOM	RO	ROUGH OPENINGS
CL	CENTERLINE	SCH	SCHEDULE
CND	CONDUIT	SE	SOUTHEAST
CONT	CONTINUOUS	SEC	SECOND
CONTD	CONTINUED	SHT	SHEET
CV	CONTROL VALVE	SIM	SIMILAR
DB	DUCT BANK	SL	SLOPE
DIA	DIAMETER	SLG	SLIDE GATE
DIP	DUCTILE IRON PIPE	SPG	SPACING
DWG(S)	DRAWING(S)	SS	STAINLESS STEEL, SANITARY SEWER, SPEED SELECTOR, SUSPENDED SOLIDS
FAB	FABRICATE(D), FABRICATION	STL	STEEL
FND	FOUNDATION	STRUCT	STRUCTURAL
FR	FRAME	T/C	TOP OF CURB
FT	FLASH TANK, FEET	THD'D	THREADED
GALV	GALVANIZED	TOP	TOP OF PIPE
GEN	GENERAL	TOS	TOP OF STEEL
GPD	GALLONS PER DAY	TPG	TOPPING
GPM	GALLONS PER MINUTE	TYP	TYPICAL
GRD	GRADE	UG	UNDERGROUND
GRTG	GRATING	U/P	UTILITY POLE
H	HIGH, HORIZONTAL	US	UTILITY STATION
HOR	HORIZONTAL	VAR	VARIES, VARIABLE
HR	HANDRAIL, HEAT RESERVIOR	VERT(S)	VERTICAL(S)
ID	INSIDE DIAMETER	W/	WITH
INV	INVERT, INVERT ELEVATION	W/O	WITHOUT
INV EL	INVERT ELEVATION	WSTP	WATERSTOP
JB	JUNCTION BOX	WT	WATERTIGHT, WEIGHT
JCT	JUNCTION	WWF	WELDED WIRE FABIRC, WET WEATHER FLOW
LEV	LEVEL	#	NUMBER, POUNDS
MAINT	MAINTENANCE	&	AND
MAT'L	MATERIAL	@	AT
MAX	MAXIMUM	Ø	DIAMETER, PHASE
MECH	MECHANICAL		
MFR	MANUFACTURER		
MG	MILLION GALLONS		
MGD	MILLION GALLONS PER DAY		
N	NEUTRAL, NORTH		
NE	NORTHEAST		
NOM	NOMINAL		
NW	NORTHWEST		

NOTE:  
THE MATERIAL PRESENTED ON THIS DRAWING IS FOR REFERENCE USE. SOME OF THE DETAILS OR INFORMATION PRESENTED ON THIS DRAWING MAY NOT BE REQUIRED AS PART OF THIS CONTRACT.

Path: C:\bcrow\42882766  
Filename: 158869-G-002.dwg Plot Date: 7/22/2019 CADD User: Richard Sellona



			REVISION					DATE 12/2/2024	SCALE AS NOTED	CITY OF TACOMA ENVIRONMENTAL SERVICES DEPARTMENT LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II CIVIL LEGEND AND ABBREVIATIONS	DRAWING NO. G-002
			BY VH	CHECKED JF	DATE KT	PROJECT NAME 158869-G-002.dwg		WBS NO. ES24-0258F			
									SHEET NO. 2	OF 11	



PHOTO 1: LOOKING SOUTH



PHOTO 2: LOOKING NORTHEAST



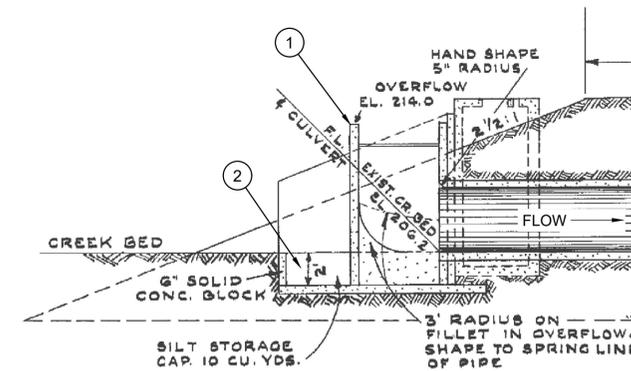
PHOTO 3: LOOKING SOUTHWEST

**GENERAL NOTES:**

1. SEE SPECIFICATION 02050 FOR DEMOLITION AND SALVAGE REQUIREMENTS.

**KEY NOTES:**

1. PROTECT EXISTING 60" STRUCTURE TO REMAIN IN PLACE. STRUCTURE WILL BE REPAIRED AND REHABBED BY OWNER.
2. REMOVE ACCUMULATED SEDIMENT FROM FOREBAY.
3. HINGED PORTION OF GRATING TO REMAIN. SEE S-002.
4. REMOVE CONDUIT.
5. EXISTING HANDRAIL TO REMAIN.
6. REMOVE GRATING PANELS. GRATING IS TACK-WELDED TO THE SUPPORTS AND ALONG PANEL JOINTS AND WILL REQUIRE CUTTING WITHOUT DAMAGE TO THE SUPPORTING ANGLES AND BEAM.
7. REMOVE AND SALVAGE EQUIPMENT ENCLOSURES (1) STILLING WELLS (2) AND PRESSURE/LEVEL TRANSDUCERS (2)



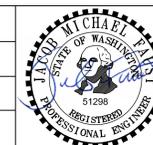
SOURCE: 1960 RECORD DRAWINGS FOR: LEACH CREEK HOLDING BASIN: DAM AND STRUCTURES

EXISTING CONDITION

SECTION 1-1

SCALE: NTS

Signer Name: Jacob Faust  
 Signing Reason: I approved this document.  
 Signing Time: 2024-12-13 11:59:38 (EST)



CITY OF TACOMA  
 ENVIRONMENTAL SERVICES DEPARTMENT  
 LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II  
 CIVIL  
 OUTLET STRUCTURE DEMOLITION PLAN

DRAWING NO. D-001  
 WBS NO. ES24-0258F  
 ENV-03031-01  
 SHEET NO. 3 of 11

Path: C:\bcrow\42882817 File Name: 158869-D-001.dwg Plot Date: 7/22/2019 CADD User: Richard Sellona



Know what's below.  
 Call before you dig.



AT FULL SCALE  
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 (IF NOT 1" SCALE ACCORDINGLY)



NO	REVISION	DATE	APPD

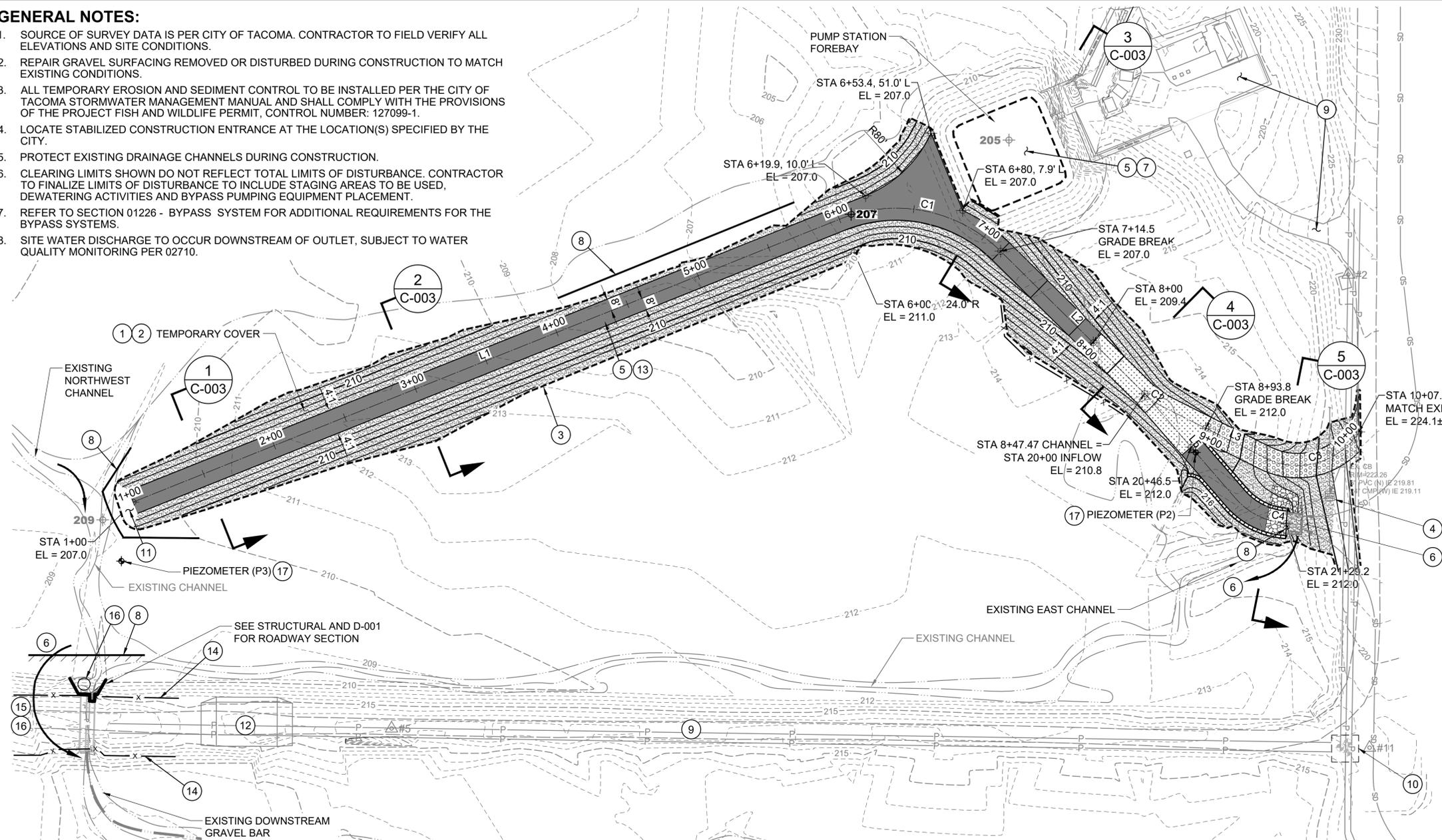
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BY VH	CHECKED JF	
DATE	DRAWN KT	PROJECT NAME
FIELD BOOKS	DRAWING NAME 158869-D-001.dwg	

**GENERAL NOTES:**

1. SOURCE OF SURVEY DATA IS PER CITY OF TACOMA. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS AND SITE CONDITIONS.
2. REPAIR GRAVEL SURFACING REMOVED OR DISTURBED DURING CONSTRUCTION TO MATCH EXISTING CONDITIONS.
3. ALL TEMPORARY EROSION AND SEDIMENT CONTROL TO BE INSTALLED PER THE CITY OF TACOMA STORMWATER MANAGEMENT MANUAL AND SHALL COMPLY WITH THE PROVISIONS OF THE PROJECT FISH AND WILDLIFE PERMIT, CONTROL NUMBER: 127099-1.
4. LOCATE STABILIZED CONSTRUCTION ENTRANCE AT THE LOCATION(S) SPECIFIED BY THE CITY.
5. PROTECT EXISTING DRAINAGE CHANNELS DURING CONSTRUCTION.
6. CLEARING LIMITS SHOWN DO NOT REFLECT TOTAL LIMITS OF DISTURBANCE. CONTRACTOR TO FINALIZE LIMITS OF DISTURBANCE TO INCLUDE STAGING AREAS TO BE USED, DEWATERING ACTIVITIES AND BYPASS PUMPING EQUIPMENT PLACEMENT.
7. REFER TO SECTION 01226 - BYPASS SYSTEM FOR ADDITIONAL REQUIREMENTS FOR THE BYPASS SYSTEMS.
8. SITE WATER DISCHARGE TO OCCUR DOWNSTREAM OF OUTLET, SUBJECT TO WATER QUALITY MONITORING PER 02710.

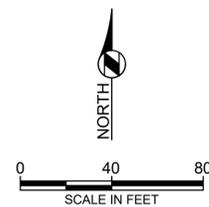
**KEY NOTES:**

- 1 ERODABLE SOILS SHALL BE COVERED WITHIN THE TIME PERIOD SPECIFIED IN WSDOT SECTION 8-01.3(1).
- 2 COMPOSTED MULCH, PERMANENT SEEDING, PLANTING, AND EROSION CONTROL BLANKETS SHALL BE INSTALLED BEFORE DIVERTING STREAM FLOW TO FINISHED CHANNEL.
- 3 DELINEATE CLEARING LIMITS WITH HIGH VISIBILITY CONSTRUCTION FENCE.
- 4 INSTALL STORM DRAIN INLET PROTECTION.
- 5 INSTALL DEWATERING SYSTEM PER SECTION 02715. SITE WATER SHALL BE DISCHARGED DOWNSTREAM OF THE OUTLET STRUCTURE AND MUST COMPLY WITH SECTION 02710 SITE WATER DISCHARGE.
- 6 CONTRACTOR TO PROVIDE BYPASS PUMPING AT THIS LOCATION PER 01126 BYPASS.
- 7 REMOVE EXCESS MATERIAL AND DEBRIS TO ELEVATION 205.0'. SEE SPECIFICATION SECTION 01010.
- 8 CONSTRUCT TEMPORARY WATERPROOF COFFERDAM IN ORDER TO BYPASS FLOW AWAY FROM WORK AREA DURING CONSTRUCTION PER SECTION 01126.
- 9 MAINTAIN 24-HOUR ACCESS TO EXISTING PUMP STATION AND OUTLET STRUCTURE AT ALL TIMES.
- 10 EXISTING WELLS AND BOLLARDS. PROTECT IN PLACE.
- 11 CONNECT TO EXISTING CHANNEL. CONNECTION POINT SHALL BE GRADED TO PROMOTE PROPER CHANNEL FLOW TO OUTLET STRUCTURE.
- 12 PROTECT OVERFLOW SPILLWAY STRUCTURE BY DISTRIBUTING VEHICLE LOADS PER SECTION 02100.
- 13 SOFT SOILS ARE ANTICIPATED TO BE ENCOUNTERED DURING EXCAVATION. CONTRACTOR TO UTILIZE STABILIZING TRACK MATS WHERE NECESSARY.
- 14 INSTALL SILT FENCE PER CITY OF TACOMA BMP C233.
- 15 AREA WEST OF OUTLET STRUCTURE AVAILABLE FOR BYPASS AND TREATMENT RELATED EQUIPMENT SEE G-001
- 16 OUTLET STRUCTURE, SEE SHEET D-001 AND STRUCTURAL PLANS FOR DETAILS.
- 17 EXISTING PIEZOMETER AVAILABLE FOR CONTRACTOR USE. SEE SECTION 02715.



CHANNEL CENTERLINE									
SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	500.94'	N68°13'39"E				1+00.00	N = 696309.47 E = 1141107.70	6+00.94	N = 696495.28 E = 1141572.91
C1	113.59'		066°24'28"	98.00'	64.14'	6+00.94	N = 696495.28 E = 1141572.91	7+14.53	N = 696474.01 E = 1141678.11
L2	132.94'	S45°21'53"E				7+14.53	N = 696474.01 E = 1141678.11	8+47.47	N = 696380.61 E = 1141772.72
C2	15.19'		018°08'02"	48.00'	7.66'	8+47.47	N = 696380.61 E = 1141772.72	8+62.66	N = 696371.81 E = 1141785.02
L3	74.67'	S63°29'56"E				8+62.66	N = 696371.81 E = 1141785.02	9+37.33	N = 696338.49 E = 1141851.85
C3	70.11'		083°41'18"	48.00'	42.98'	9+37.33	N = 696338.49 E = 1141851.85	10+07.44	N = 696355.43 E = 1141913.61

INFLOW CHANNEL CENTERLINE									
SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L5	90.92'	S40°59'56"E				20+00.00	N = 696380.62 E = 1141772.73	20+90.92	N = 696312.00 E = 1141832.38
C4	38.20'		045°36'05"	48.00'	20.18'	20+90.92	N = 696312.00 E = 1141832.38	21+29.13	N = 696295.57 E = 1141865.76



Know what's below.  
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AT FULL SCALE  
0 1/2 1  
(IF NOT 1" SCALE ACCORDINGLY)



NO REVISION DATE APPD

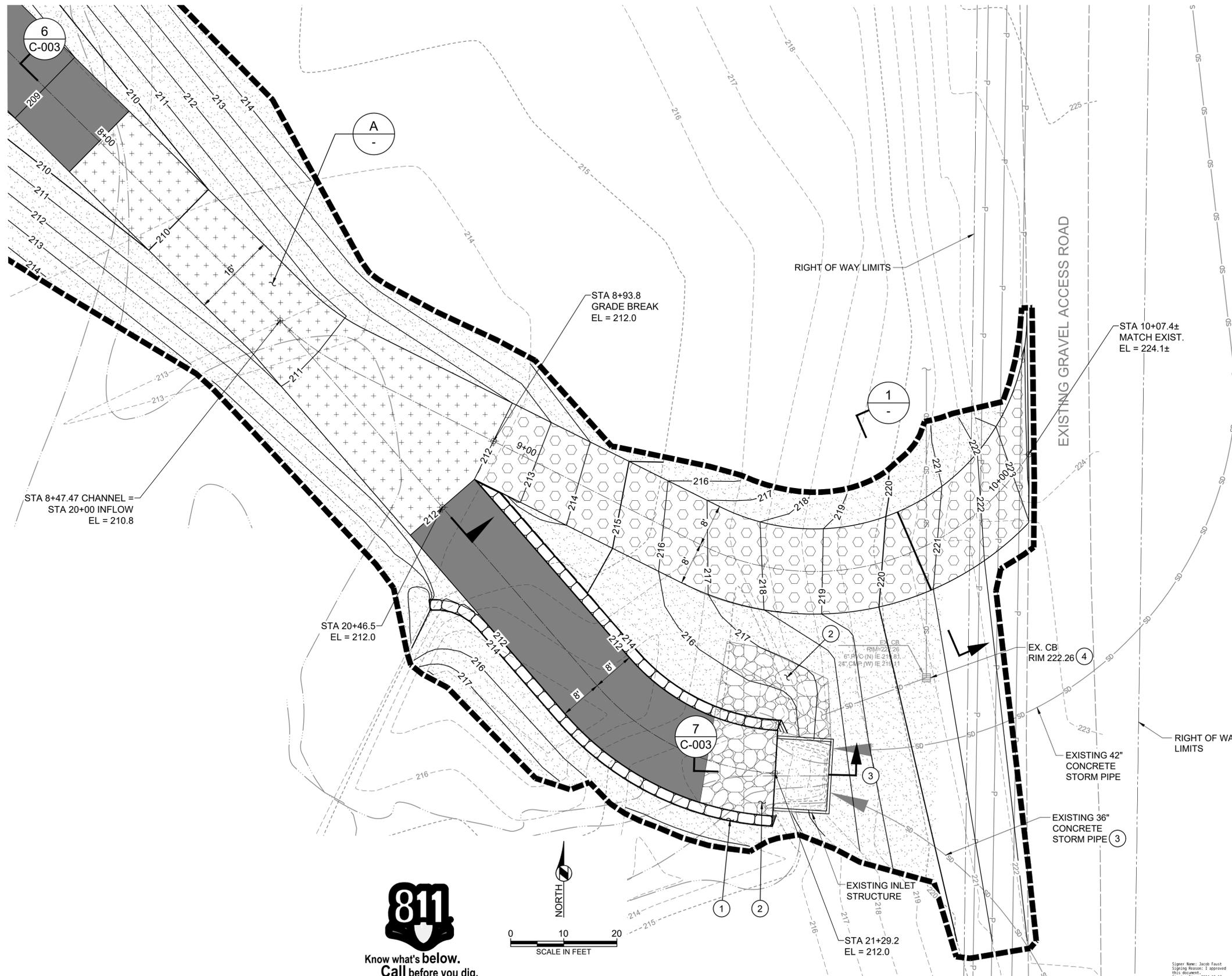
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BY	12/3/2024	1" = 40'
DATE	VH	CHECKED
FIELD BOOKS	KT	PROJECT NAME
	DRAWING NAME	
	158869-C-001.dwg	



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT  
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II  
CIVIL - TEMPORARY EROSION AND SEDIMENT CONTROL,  
BYPASS, GRADING AND LAYOUT

DRAWING NO. C-001  
MBS NO. ES24-0258F  
ENV-03031-01  
SHEET NO. 4 of 11

Path: C:\bcw\42892769  
Filename: 158869-C-001.dwg  
Plot Date: 7/22/2019  
CADD User: Richard Sellona

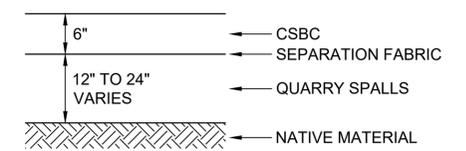


**GENERAL NOTES:**

1. SOURCE OF SURVEY DATA IS PER CITY OF TACOMA. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS.
2. CONTRACTOR TO LOCATE AND PROTECT EXISTING UTILITIES.
3. SEE SHEET C-001 FOR TEMPORARY EROSION AND SEDIMENT CONTROL.
4. FOR CHANNEL CENTERLINE SURVEY CONTROL, SEE SHEET C-001.

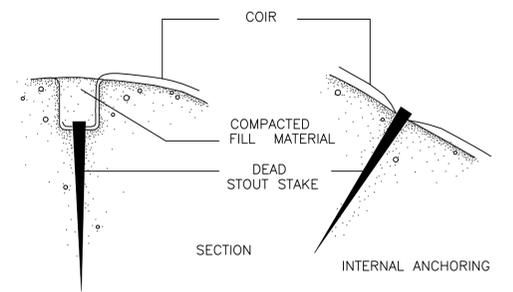
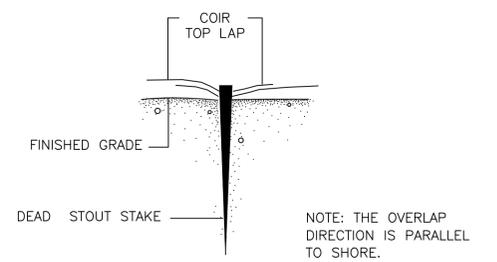
**KEY NOTES:**

1. INSTALL ECOLOGY BLOCKS FOR 80' DOWNSTREAM OF INLET STRUCTURE. SEE SECTION 5, C-003.
2. INSTALL RIPRAP OUTLET PROTECTION, 14-FOOT DOWNSTREAM AND EXTENDING UP THE CHANNEL SIDES A MINIMUM OF 1-FOOT ABOVE THE PIPE CROWN ELEVATION.
3. CONTRACTOR TO PROVIDE BYPASS PUMPING AT THIS LOCATION PER 01126 BYPASS.
4. ADJUST FINAL GRADE TO RIM OF EXISTING INLET.



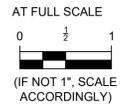
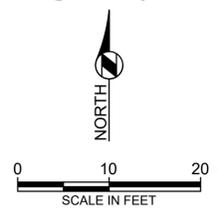
ACCESS ROAD / RAMP SECTION

SECTION 1  
NO SCALE



COIR INSTALLATION  
DETAIL A  
SCALE: N.T.S.

Path: C:\bcrow\42882769 File Name: 158869-C-002.dwg Plot Date: 7/22/2019 CADD User: Richard Sellona



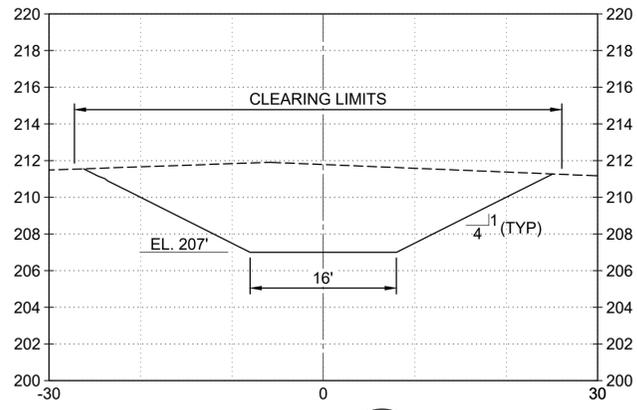
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FINAL CONSTRUCTION CHECKED	DATE 12/2/2024	SCALE 1" = 10'
BY	DESIGNED VH	CHECKED JF
DATE	DRAWN KT	PROJECT NAME
FIELD BOOKS	DRAWING NAME 158869-C-002.dwg	

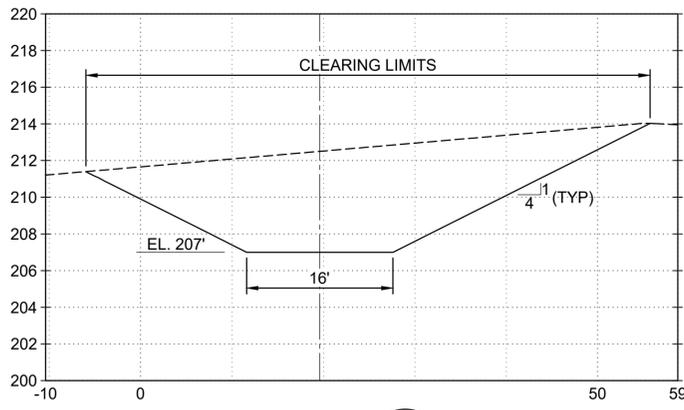


CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT  
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II  
CIVIL  
INFLOW CHANNEL REROUTING AND ACCESS RAMP

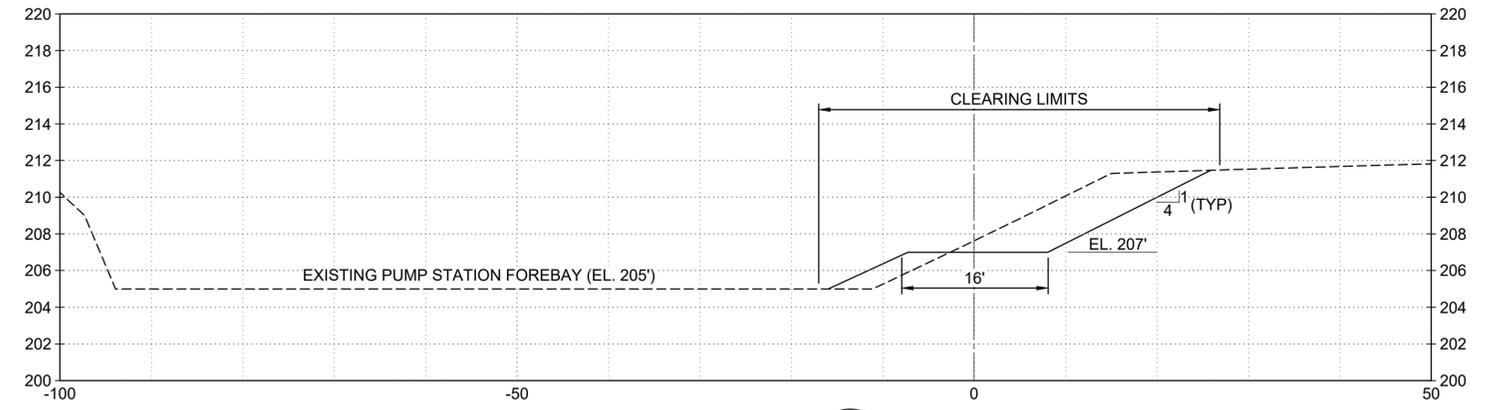
DRAWING NO. C-002
WBS NO. ES24-0258F
SHEET NO. ENV-03031-01
SHEET 5 of 11



SECTION 1  
C-001  
SCALE: 1" = 10' (H)  
1" = 5' (V)

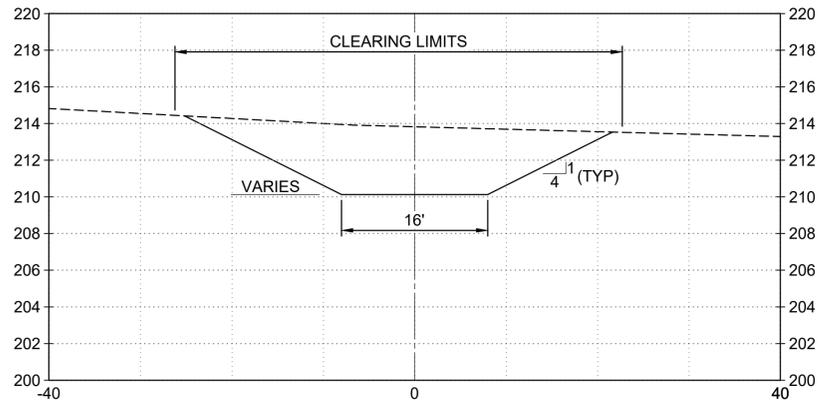


SECTION 2  
C-001  
SCALE: 1" = 10' (H)  
1" = 5' (V)

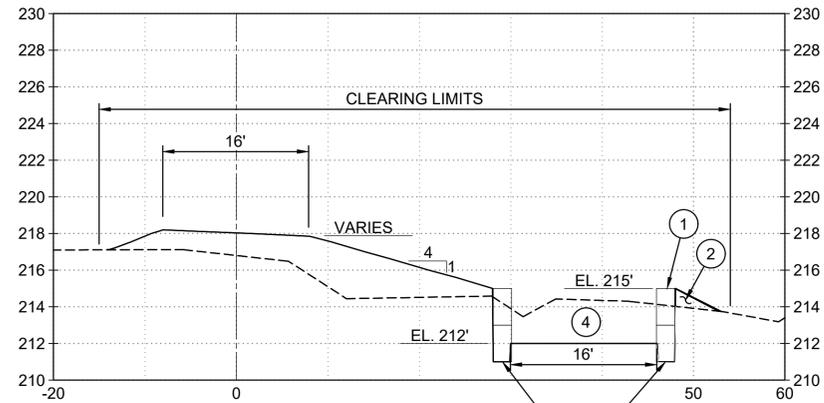


SECTION 3  
C-001  
SCALE: 1" = 10' (H)  
1" = 5' (V)

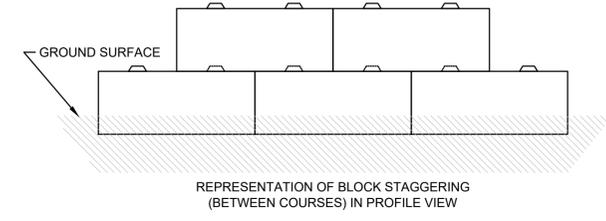
- GENERAL NOTES:**
1. ALL MATERIAL REMOVED FROM THE HOLDING BASIN AND CHANNEL SHALL BE HAULED TO LRI LANDFILL LOCATED AT 30919 MERIDIAN STREET EAST, GRAHAM WA.



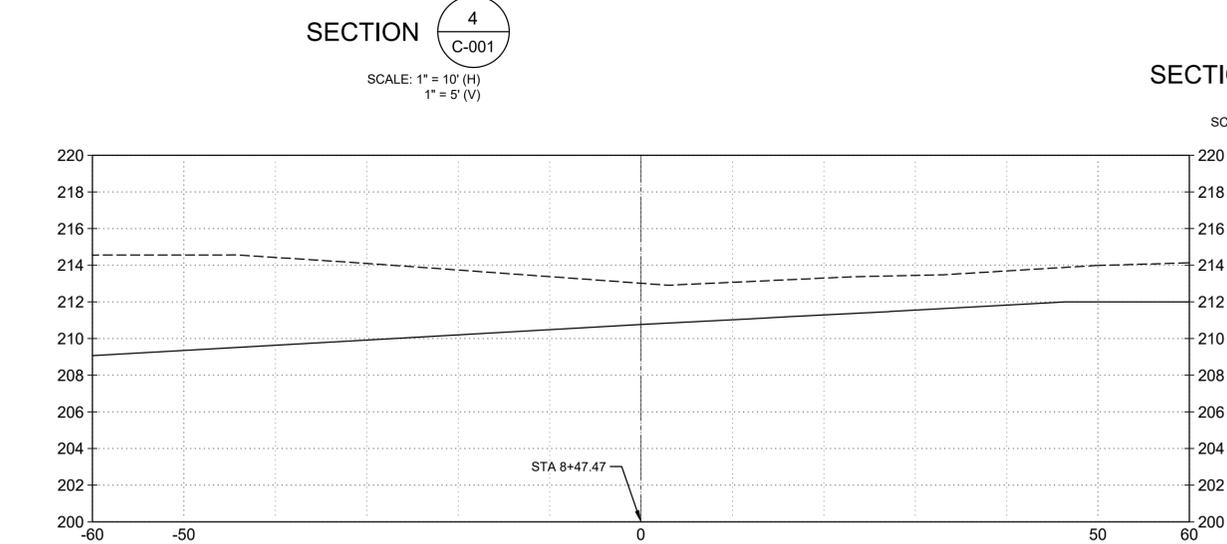
SECTION 4  
C-001  
SCALE: 1" = 10' (H)  
1" = 5' (V)



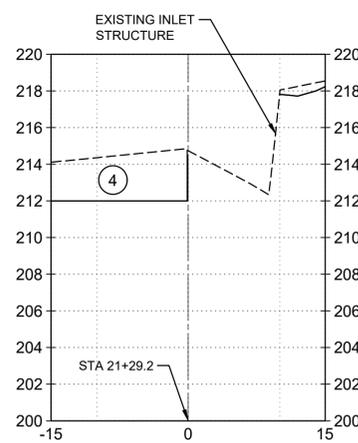
SECTION 5  
C-001  
SCALE: 1" = 10' (H)  
1" = 5' (V)



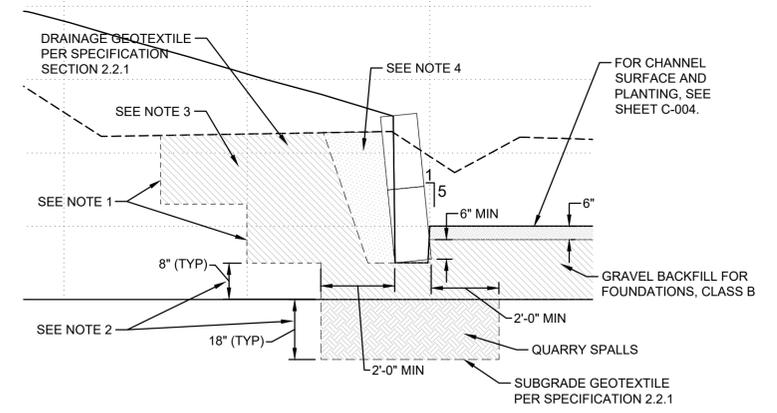
- KEY NOTES:**
1. ECOLOGY BLOCKS. SEE C-002 FOR EXTENTS OF INSTALLATION.
  2. BACKFILL SURFACE TO TOP OF ECOLOGY BLOCKS.
  3. EXCESS MATERIAL TO BE REMOVED FROM HOLDING BASIN ESTIMATED TO BE 150 CY.
  4. INSTALL RIPRAP OUTLET PROTECTION, 14 FEET DOWNSTREAM. SEE C-002.



SECTION 6  
C-002  
SCALE: 1" = 10' (H)  
1" = 5' (V)



SECTION 7  
C-002  
SCALE: 1" = 10' (H)  
1" = 5' (V)

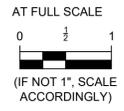


- NOTES:**
1. CONTRACTOR TO DETERMINE EXCAVATION CONFIGURATION BASED ON MEANS AND METHODS, SITE SOIL AND GROUNDWATER CONDITIONS, AND OSHA REQUIREMENTS.
  2. IF DENSE SOIL IS ENCOUNTERED BEFORE REACHING OR AT THE NOTED TYPICAL EXCAVATION DEPTH, NO FURTHER EXCAVATION IS REQUIRED AT THAT LOCATION, AND BACKFILL SHALL BE WITH GRAVEL BACKFILL FOR FOUNDATIONS, CLASS B. ONLY IF SOFT MATERIALS ARE ENCOUNTERED TO THE TYPICAL EXCAVATION DEPTH NOTED, INCLUDE QUARRY SPALLS WRAPPED IN A SUBGRADE GEOTEXTILE, PER THE DETAIL.
  3. BACKFILL WITH GRAVEL BACKFILL FOR FOUNDATIONS, CLASS B, UP TO 1 FOOT FROM THE BACK FACE OF THE ECOLOGY BLOCK.
  4. PLACE DRAINAGE GEOTEXTILE PRIOR TO BACKFILLING WITH PERMEABLE BALLAST. HAND TAMP PLACED MATERIAL IN LIFTS NOT TO EXCEED 6 INCHES WITH AT LEAST 4 PASSES OF A HAND TAMPER. DO NOT PLACE UPPER COURSE ECOLOGY BLOCKS UNTIL PERMEABLE BALLAST HAS BEEN PLACED UP TO THE TOP OF THE FIRST COURSE.

ECOLOGY WALL FOUNDATION TYPICAL

DETAIL A  
C-003  
SCALE: NTS

Path: C:\bcw\14282769 File Name: 158869-C-003.dwg Plot Date: 7/22/2019 CADD User: Richard Sellona



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE 12/2/2024	SCALE AS NOTED
BY VH	DESIGNED JF	CHECKED JF
DATE	DRAWN KT	PROJECT NAME
FIELD BOOKS	DRAWING NAME	
	158869-C-003.dwg	



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT  
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II  
CIVIL  
GRADING SECTIONS

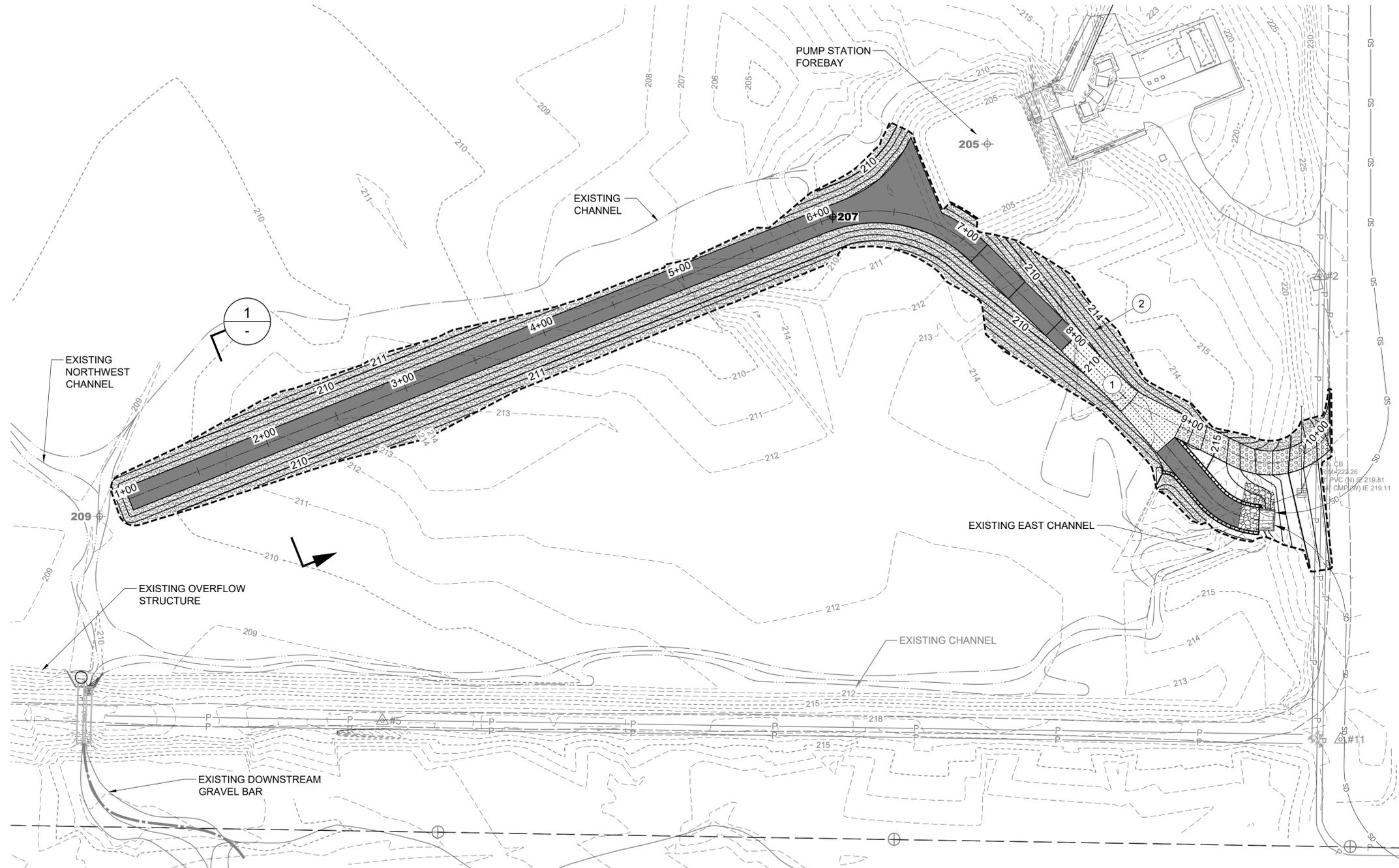
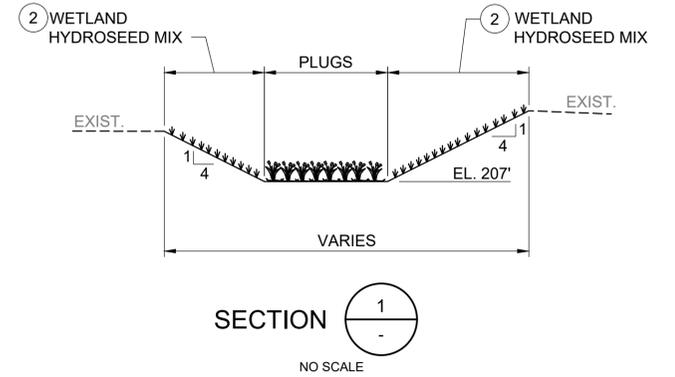
DRAWING NO.	C-003
WBS NO.	ES24-0258F
SHEET NO.	ENV-03031-01
SHEET 6	of 11

**GENERAL NOTES:**

- SOURCE OF SURVEY DATA IS PER CITY OF TACOMA. CONTRACTOR TO FIELD VERIFY ALL ELEVATIONS.

**KEY NOTES:**

- SEE SHEET C-002 FOR COIR MAT INSTALLATION DETAILS.
- SEE SHEET C-005 FOR EROSION CONTROL BLANKET OVER WETLAND HYDROSEED INSTALLATION DETAILS.



**Table 5. Emergent wetland planting schedule – Base of Stormwater Channel<sup>1,2,3</sup>**

Common Name	Species Name	Indicator Status	Size <sup>2</sup>	Spacing (O.C)
<b>Emergent Species</b>				
Slough sedge	<i>Carex obtusa</i>	OBL	Plug	2 ft.
Saw-beaked sedge	<i>Carex stipata</i>	OBL	Plug	2 ft.
Tall mangrass	<i>Glyceria elata</i>	FACW	Plug	2 ft.
Tapertip rush	<i>Juncus acuminatus</i>	OBL	Plug	2 ft.
Hardstem bulrush	<i>Schoenoplectus acutus</i>	OBL	Plug	2 ft.
Small-flowered bulrush	<i>Scirpus microcarpus</i>	OBL	Plug	2 ft.

<sup>1</sup> Quantities to be determined upon completion of grading.

<sup>2</sup> Plugs will be planted in clumps of four.

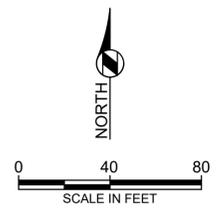
**Table 6. Wetland hydroseed mix – Slopes of Stormwater Channel<sup>1,2,3</sup>**

Common Name	Species Name	Indicator Status
Tall mangrass	<i>Glyceria elata</i>	FACW
Tufted hairgrass	<i>Deschampsia spicata</i>	FACW
Water foxtail	<i>Alopecurus geniculatus</i>	FACW
Meadow barley	<i>Hordeum brachyantherum</i>	FACW
Slough sedge	<i>Carex obtusa</i>	OBL

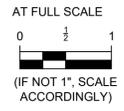
<sup>1</sup> An assortment (by weight) of the species listed in Table 6 should be included in the seed mix.

<sup>2</sup> Seed mix shall be applied at approximately 0.25-50 lbs. per 1,000 sq. ft.

<sup>3</sup> Species may be substituted with other native wetland species if availability is limited.



Path: C:\bcrow\42882769 File: 158869-C-004.dwg Plot Date: 7/22/2019 CADD User: Richard Sellona



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE 12/2/2024	SCALE AS NOTED
BY VH	DESIGNED JF	CHECKED JF
DATE	DRAWN KT	PROJECT NAME
FIELD BOOKS	DRAWING NAME 158869-C-004.dwg	



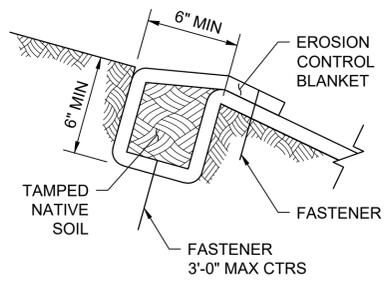
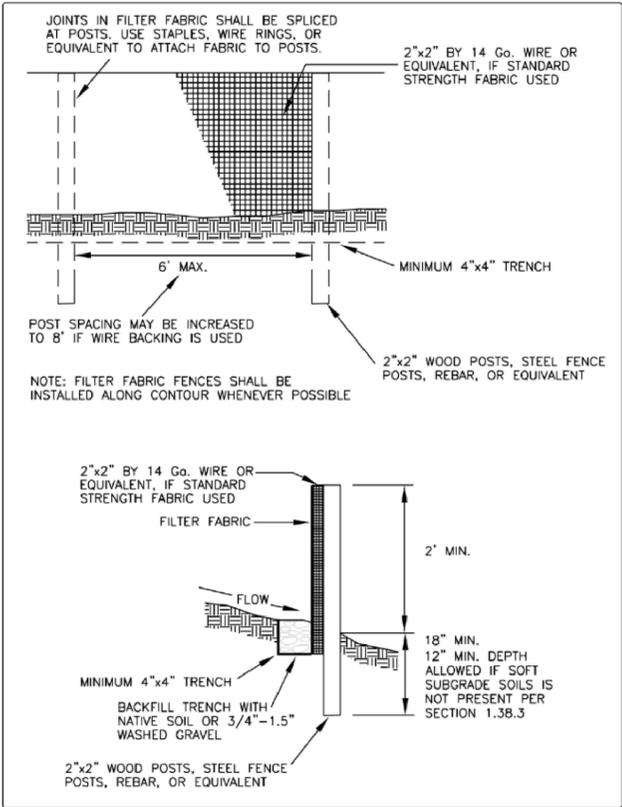
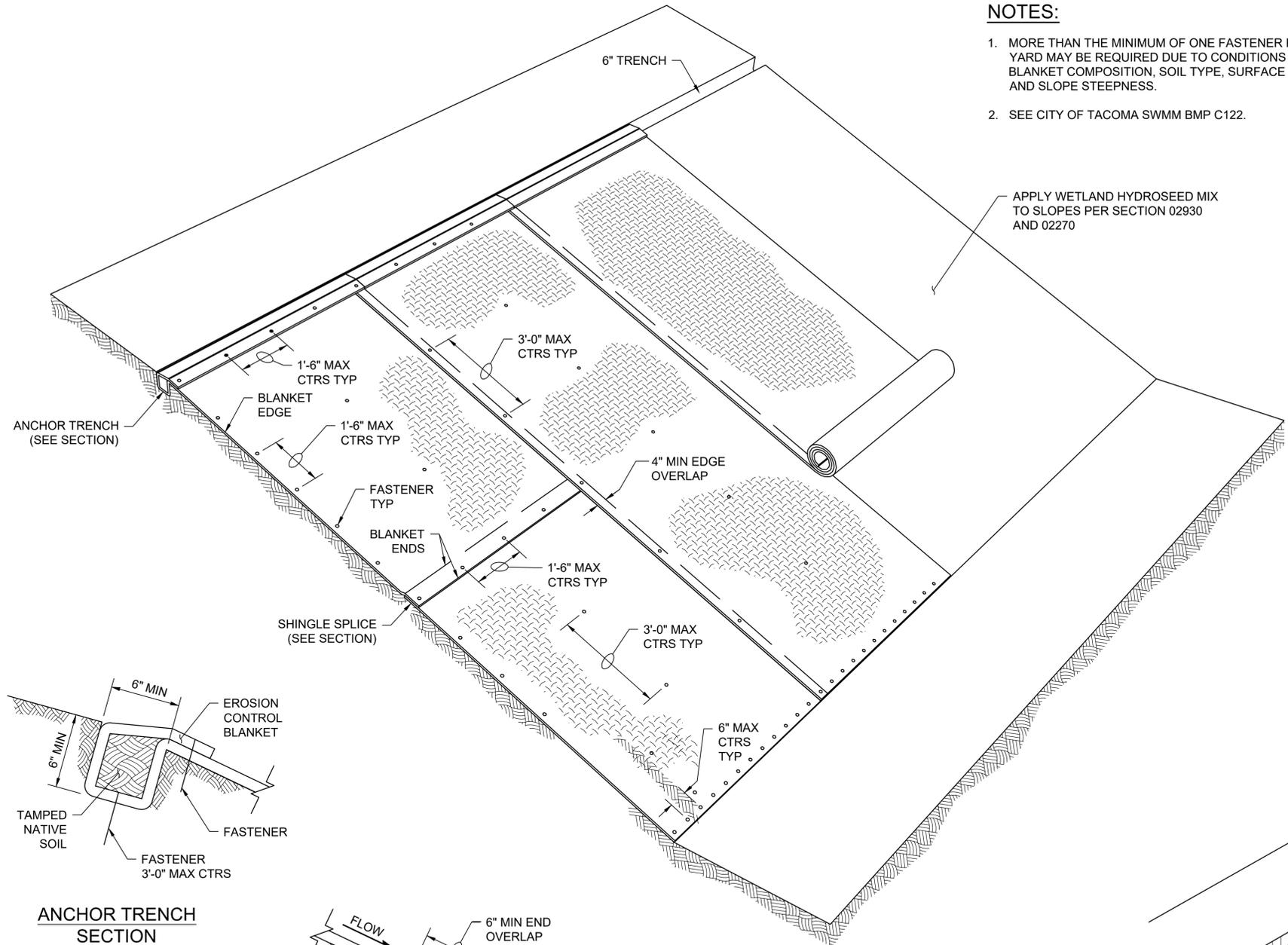
CITY OF TACOMA  
 ENVIRONMENTAL SERVICES DEPARTMENT  
 LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II  
 CIVIL  
 PLANTING PLAN AND DETAILS

DRAWING NO. C-004
MBS NO. ES24-0258F
SHEET NO. ENV-03031-01
SHEET 7 of 11

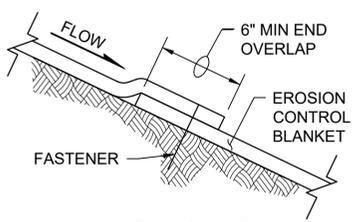
**NOTES:**

- MORE THAN THE MINIMUM OF ONE FASTENER PER SQUARE YARD MAY BE REQUIRED DUE TO CONDITIONS SUCH AS BLANKET COMPOSITION, SOIL TYPE, SURFACE UNIFORMITY, AND SLOPE STEEPNESS.
- SEE CITY OF TACOMA SWMM BMP C122.

APPLY WETLAND HYDROSEED MIX TO SLOPES PER SECTION 02930 AND 02270



**ANCHOR TRENCH SECTION**

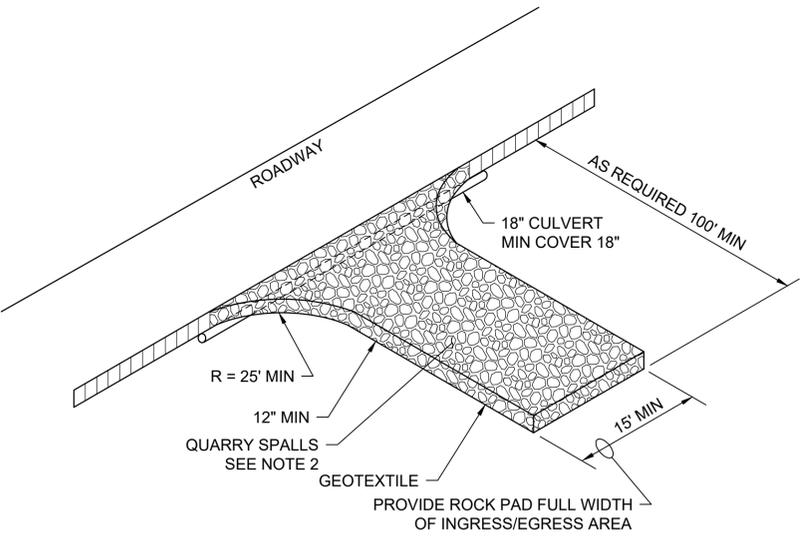


**SHINGLE SPLICE SECTION**

**PERSPECTIVE VIEW**

**EROSION CONTROL BLANKET PLACEMENT ON SLOPE**

**DETAIL A**  
SCALE: NTS



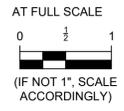
**CONSTRUCTION ENTRANCE DETAIL**

**DETAIL B**  
SCALE: NTS

**NOTES:**

- CONTRACTOR SHALL INSTALL AND MAINTAIN A STABILIZED CONSTRUCTION ENTRANCE WHERE VEHICLES ENTER THE PROJECT SITE.
- THE ROCK PAD SHALL BE AT LEAST 12" THICK AND 100' LONG. MATERIAL SHALL BE 4" TO 8" QUARRY SPALLS AND MAY BE TOP-DRESSED WITH 1" TO 3" ROCK. WIDTH SHALL BE THE FULL WIDTH OF THE VEHICLE INGRESS AND EGRESS AREA.
- ADDITIONAL ROCK SHALL BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF THE PAD.
- CONTRACTOR TO MAINTAIN ROAD DURING CONSTRUCTION TO MINIMIZE TRACK-OUT OF DIRT AND MATERIAL.
- CONSTRUCTION ENTRANCE SHALL MEET CITY OF TACOMA SWMM REQUIREMENTS.

Path: C:\bcrow\42882769  
Filename: 158869-C-005.dwg Plot Date: 7/22/2019 CADD User: Richard Sellona



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE	SCALE
DESIGNED	12/2/2024	AS NOTED
VH	CHECKED	JF
DATE	DRAWN	PROJECT NAME
KT	KT	
FIELD BOOKS	DRAWING NAME	
	158869-C-005.dwg	



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT  
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II  
CIVIL  
SITE DETAILS

DRAWING NO.	C-005
WBS NO.	ES24-0258F
SHEET NO.	ENV-03031-01
SHEET 8	of 11

**GENERAL STRUCTURAL NOTES**

**DESIGN CRITERIA**

APPLICABLE BUILDING NOTES AND CODES  
INTERNATIONAL BUILDING CODE, IBC 2018 EDITION, EXCEPT WHERE OTHER CODES ARE MORE RESTRICTIVE.

LIVE LOADS  
PLATFORM GRATING .....25 psf

**DRILLED-IN CONCRETE ANCHOR (DICA)**

DRILLED-IN EXPANSION BOLTS SHALL BE STAINLESS STEEL "KWIK BOLT TYPE TZ" BY HILTI CORP., OR APPROVED EQUAL. ICBO CERTIFICATION IS REQUIRED.

ADHESIVE ANCHORING SYSTEM SHALL BE STAINLESS STEEL RODS AISI 316. REINFORCING BARS AND RODS ANCHORED INTO EXISTING CONCRETE SHALL BE IN DRILLED HOLE WITH HILTI "HIT-RE 500 V3", OR SIKA "SIKADUR" EPOXY INJECTION GEL OR APPROVED EQUAL. ICBO CERTIFICATION AND SPECIAL INSPECTION IS REQUIRED.

**CEMENT GROUT/MORTAR**

GROUT AND FILL GROUT SHALL BE HIGH-STRENGTH, NON-SHRINK CEMENTITIOUS UNDERWATER CEMENT RESISTANT TO WASH-OUT.

SURFACE PREPARATION, MIXING, AGGREGATES, AND PLACEMENT SHALL CONFORM MANUFACTURE'S INSTRUCTIONS.

UNDERWATER GROUT SHALL BE AS MANUFACTURED BY DAYTON SUPERIOR, FIVE STAR, USCP CONCRETE PRODUCTS OR EUCLID CHEMICAL. SUBMIT PRODUCT CUTSHEET.

**ALUMINUM**

**MATERIAL**  
ALUMINUM CONSTRUCTION SHALL BE IN ACCORDANCE WITH ASCE SPECIFICATIONS FOR STRUCTURES OF ALUMINUM. MATERIAL TO BE ALLOY 6061-T6, UNLESS NOTED OTHERWISE.  
ALL CONNECTIONS BOLTS FOR ALUMINUM SHALL BE STAINLESS STEEL. WHERE ALUMINUM IS IN CONTACT WITH STEEL, CONCRETE OR MASONRY SURFACES, CONTACT SURFACES SHALL BE COATED WITH HEAVY ALKALI-RESISTANT BITUMINOUS PAINT, OR COAL TAR EPOXY PROTECTING COAT.

**WELDING**  
MATERIALS AND PROCEDURES FOR WELDING ALUMINUM SHALL BE IN ACCORDANCE WITH AWS D1.2 CODE.

**STAINLESS STEEL**

**MATERIAL**  
STAINLESS STEEL CONSTRUCTION SHALL BE IN ACCORDANCE WITH AISI SPECIFICATIONS. STRUCTURES OF STAINLESS STEEL SHALL CONFORM TO AISI TYPE 304 OR ASTM A240. STAINLESS STEEL BOLTS AND NUTS SHALL CONFORM TO ASTM A193 AND A194.

**WELDING**  
MATERIALS AND PROCEDURES FOR WELDING STAINLESS STEEL SHALL BE IN ACCORDANCE WITH AWS D1.6 CODE.

**SPECIAL INSPECTION**

THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION PER IBC SECTION 1704.

DRILLED IN CONCRETE ANCHORS:  
PERIODIC SPECIAL INSPECTION SHALL INCLUDE VISUAL OBSERVATION OF DRILLED HOLE, SPACINGS, AND EDGE DISTANCES.

EPOXY OR CEMENT GROUTED DOWELS OR ANCHORS:  
OBSERVE DRILLED HOLES AFTER CLEANING AND OBSERVE INSTALATION OF GROUT ANCHORS.

**MISCELLANEOUS**

VERIFY ALL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE PRIOR TO STARTING WORK AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

CALCULATIONS AND DRAWINGS FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED BY OTHER SHALL BE PREPARED BE A WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER. SUBMIT CALCULATIONS AND SHOP DRAWINGS TO THE ENGINEER FOR SATISFACTORY REVIEW PRIOR TO FABRICATION.

SUBMIT ALL REQUIRED SHOP DRAWINGS AND RECEIVE THEIR SATISFACTORY REVIEW FROM THE ENGINEER, PRIOR TO FABRICATION.

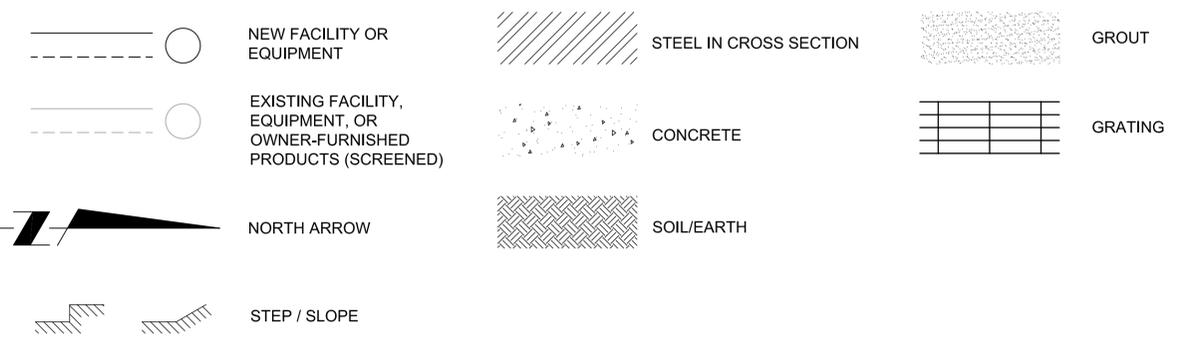
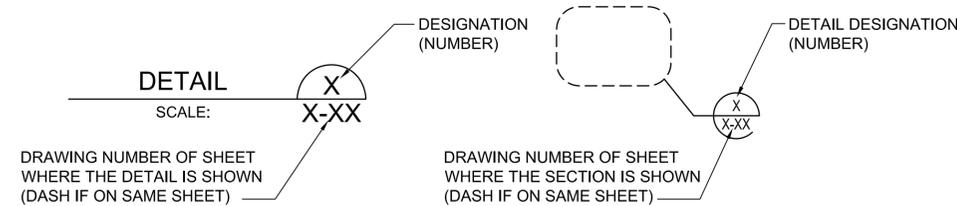
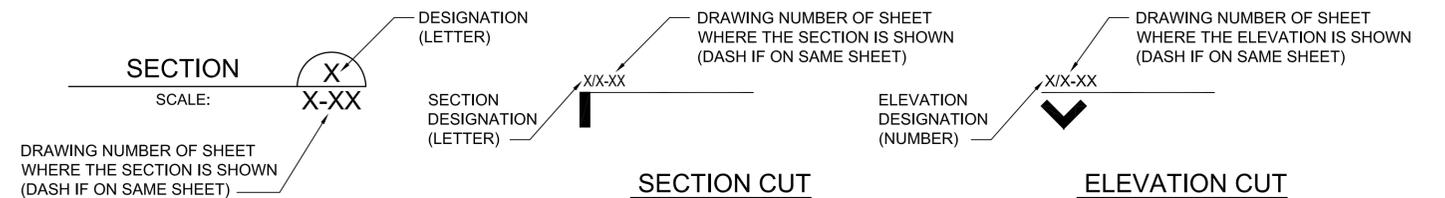
STRUCTURAL SYSTEM HAS BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURE. PROVIDE TEMPORARY ERECTION BRACING AND SHORING AS REQUIRED FOR STABILITY OF THE STRUCTURE AND ADJACENT STRUCTURES, DURING ALL PHASES OF CONSTRUCTION.

REFER TO SPECIFICATIONS FOR INFORMATION NOT CONTAINED IN THESE GENERAL NOTES.

**ABBREVIATIONS**

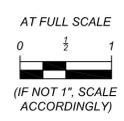
@	ANCHOR BOLT	FT	FEET OR FOOT	NTS	NOT TO SCALE	STD	STANDARD
AB	ANCHOR BOLT	GA	GAUGE, GAGE	OC	ON CENTER, CENTERS	STL	STEEL
AL	ALUMINUM	GALV	GALVANIZED	OD	OUTSIDE DIAMETER	T&B	TOP AND BOTTOM
BOT	BOTTOM	IN	INCH	OPNG	OPENING	TOC	TOP OF CONCRETE
CL	CENTER LINE	IN	INCH	PL	PROPERTY LINE	TOS	TOP OF STEEL
CLR	CLEAR	IN	INCH	PSF	POUNDS PER SQUARE	TOW	TOP OF WALL
CONC	CONCRETE	KSI	KIPS PER SQUARE	FOOT		TYP	TYPICAL
CONN	CONNECTION	INCH		PSI	POUNDS PER SQUARE	UNO	UNLESS NOTED
CONT	CONTINUOUS	INCH		INCH		OTHERWISE	
DIA	DIAMETER	L	LENGTH OR ANGLE	R	RADIUS	VERT	VERTICAL
DICA	DRILLED IN CONCRETE ANCHOR	LB	POUND	REBAR REINF	REINFORCEMENT BAR REINFORCEMENT OR REINFORCING REQUIRED	w/	WITH
DWG	DRAWING	LONGIT	LONGITUDINAL	REQD	REQUIRED	w/o	WITHOUT
EA	EACH	MAX	MAXIMUM	SECT	SECTION		
EF	EACH FACE	MECH	MECHANICAL	SHT	SHEET		
EL	ELEVATION	MIN	MINIMUM	SIM	SIMILAR		
ELEC	ELECTRICAL	MISC	MISCELLANEOUS	SPCG	SPACING		
ES	EACH SIDE	NO	NOT APPLICABLE	SS	STAINLESS STEEL		
EW	EACH WAY	N/A	NOT APPLICABLE				
EXIST	EXISTING	NF	NEAR FACE				
EXP	EXPANSION	NO	NUMBER				

**LEGEND**



**DECEMBER 2024  
BID SET**

**BRIGHT ENGINEERING, INC.**  
STRUCTURAL & CIVIL ENGINEERING  
1809 7TH AVENUE SUITE 1100  
SEATTLE, WA 98101  
P: (206) 625-3777  
F: (206) 625-1851



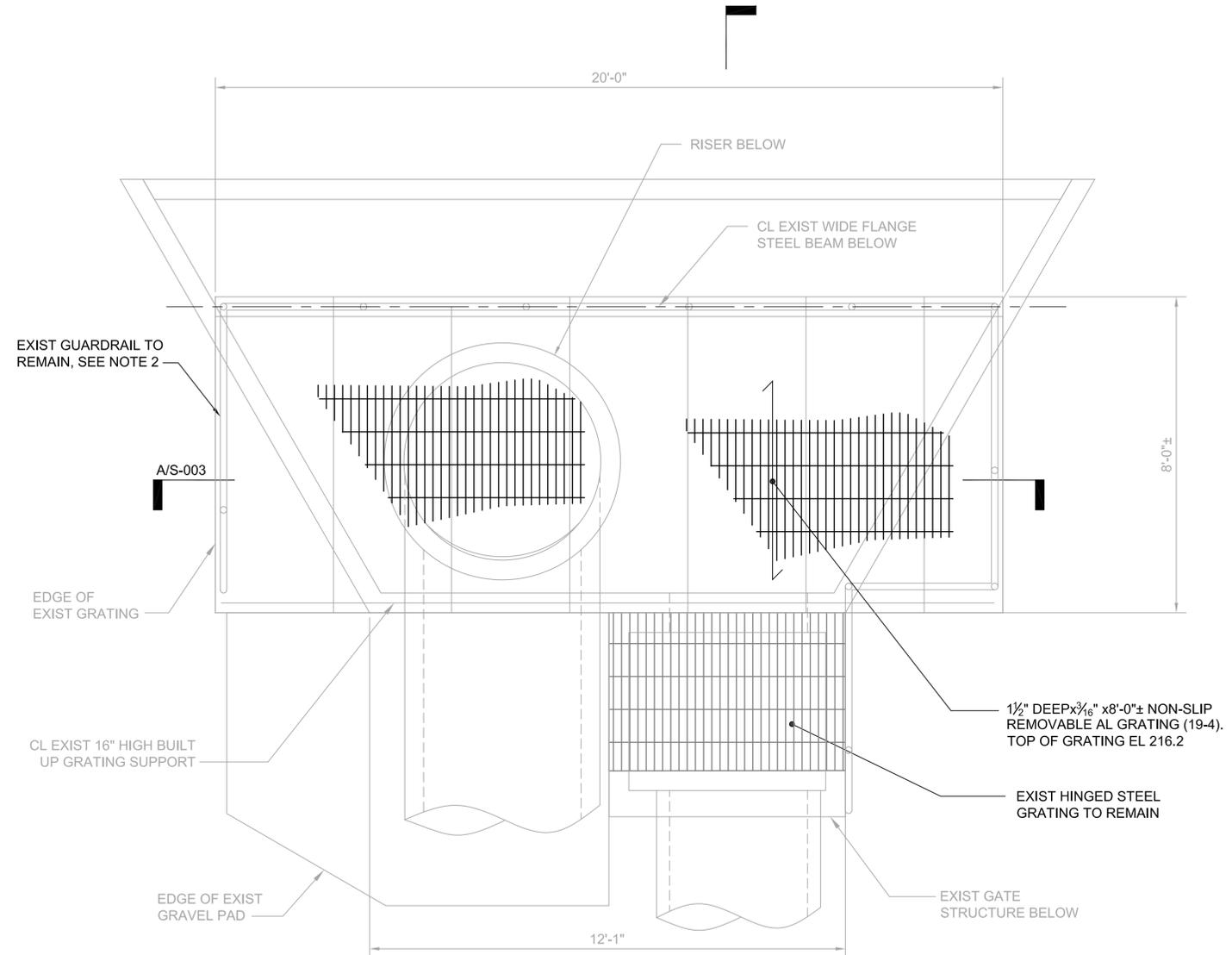
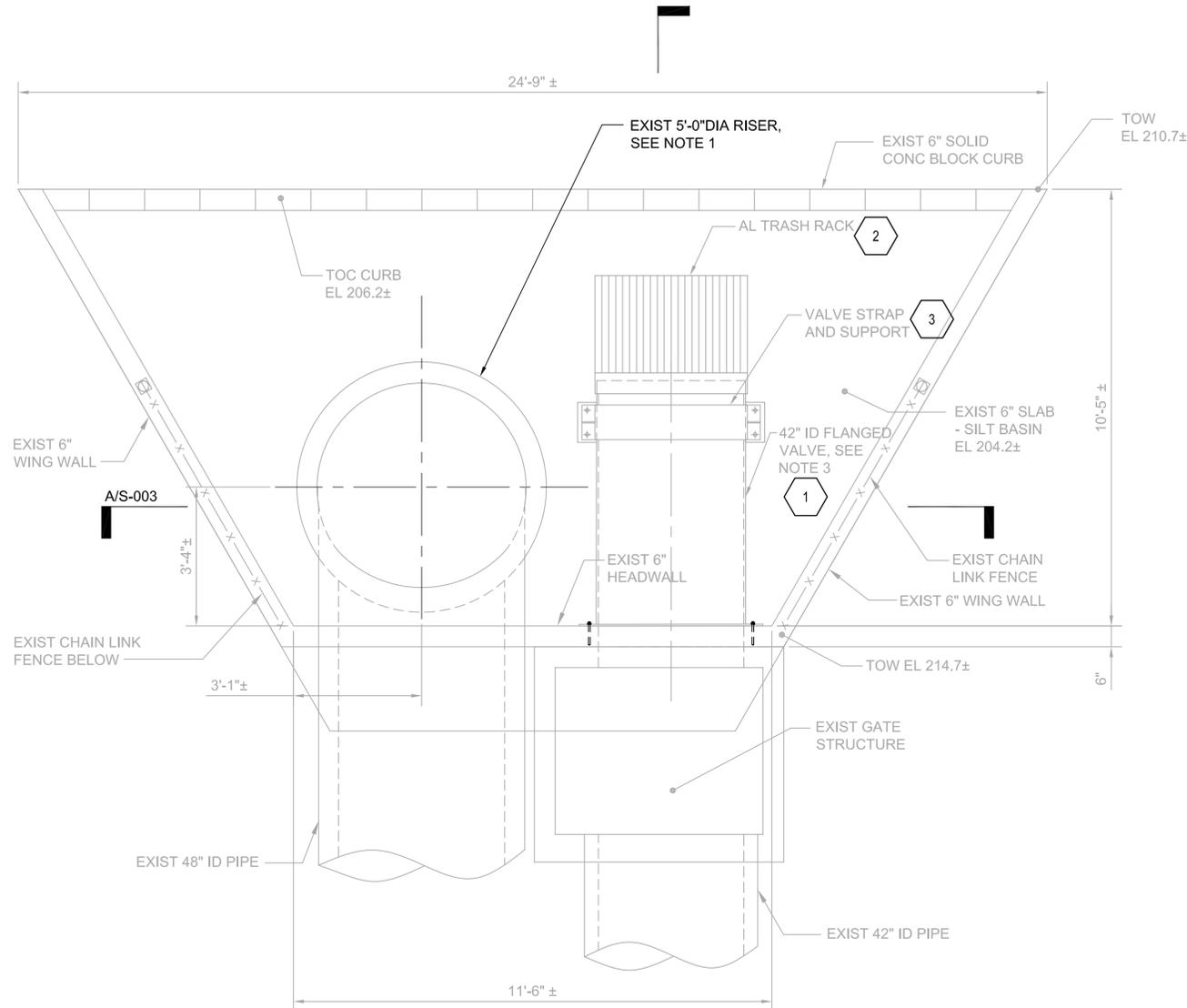
NO	REVISION	DATE	APPD
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FINAL CONSTRUCTION CHECKED	DATE	SCALE
BY	12/04/2024	AS SHOWN
DATE	DESIGNED	CHECKED
	AJB	II
	DRAWN	PROJECT NAME
	SL	
FIELD BOOKS	DRAWING NAME	
	S-001.dwg	



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT  
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II  
OUTLET STRUCTURE  
GENERAL STRUCTURAL NOTES, ABBREVIATIONS, AND LEGEND

DRAWING NO.	S-001
WBS NO.	ES24-0258F
SHEET NO.	ENV-03031-01
	SHEET 9 OF 11



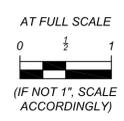
- NOTES:**
- EXISTING 5'-0" DIA CINDER BLOCK RISER AND ANNULAR GROUT TO EXISTING 48" DIA PIPE SHALL BE PROTECTED FROM DAMAGE.
  - FIELD VERIFY NUMBER, SIZE, AND LOCATIONS OF GUARDRAIL POSTS FOR CUTTING AND BANDING GRATINGS PRIOR TO FABRICATION.
  - # DENOTES OWNER-FURNISHED ITEMS TO BE INSTALLED BY THE CONTRACTOR AND ITEM TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR. SEE CONSTRUCTION NOTES ON S-003 AND PRE-ACCEPTED SUBMITTALS

**OUTLET BASIN PLAN**  
SCALE: 1/2" = 1'-0"

**OUTLET PLATFORM PLAN**  
SCALE: 1/2" = 1'-0"

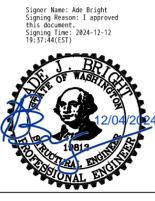
**DECEMBER 2024  
BID SET**

**6** BRIGHT ENGINEERING, INC.  
STRUCTURAL & CIVIL ENGINEERING  
1809 7TH AVENUE  
SUITE 1100  
SEATTLE, WA 98101  
P: (206) 625-3777  
F: (206) 625-1851



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE 12/04/2024	SCALE AS SHOWN
DESIGNED	AJB	CHECKED
DRAWN	SL	PROJECT NAME
DATE		
FIELD BOOKS	DRAWING NAME	
	S-002.dwg	



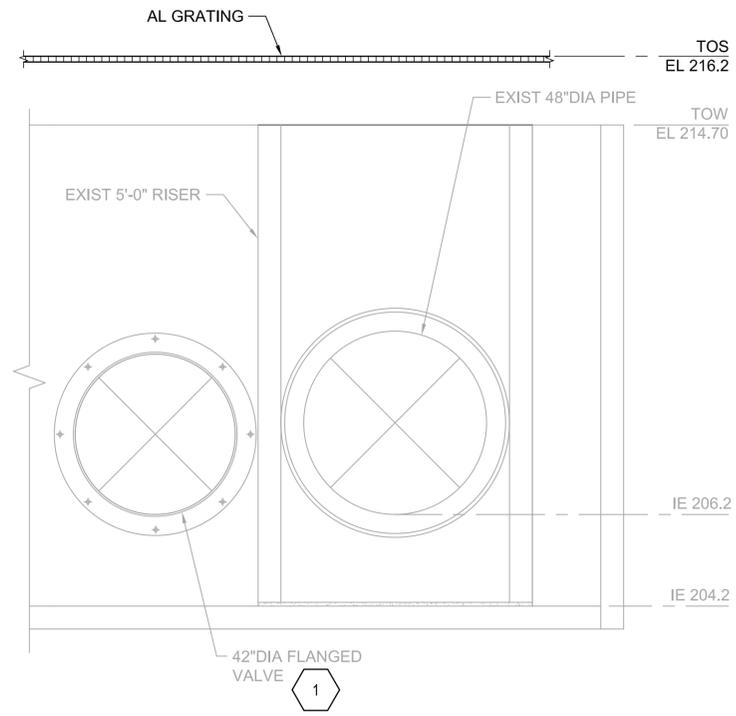
CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT  
**LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II  
OUTLET STRUCTURE  
PLANS**

DRAWING NO.	S-002
WBS NO.	ES24-0258F ENV-03031-01
SHEET NO.	10
OF	11

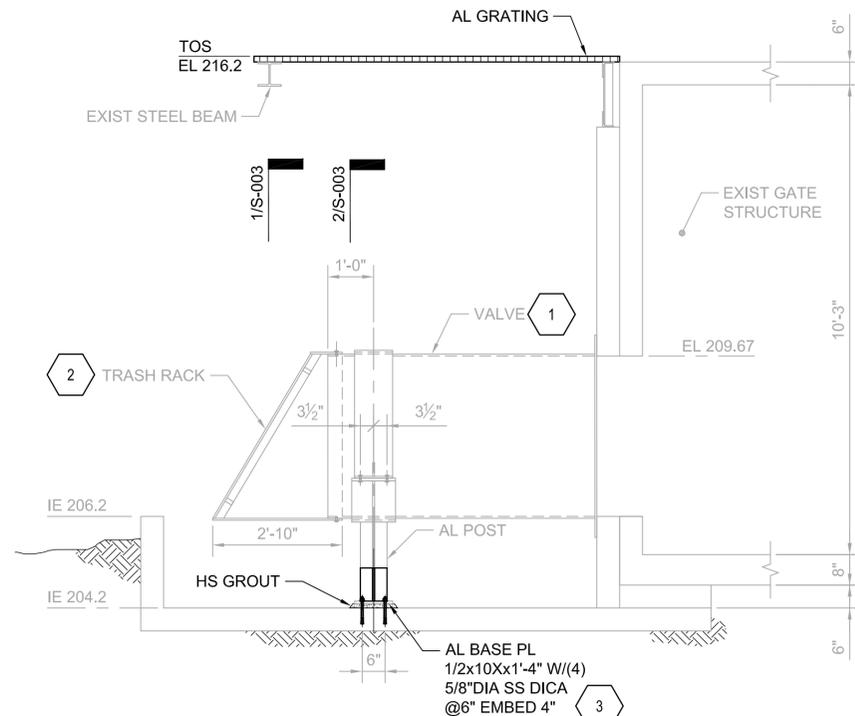
**CONSTRUCTION NOTES**

OWNER-FURNISHED ITEMS TO BE INSTALLED BY THE CONTRACTOR AND ITEM TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

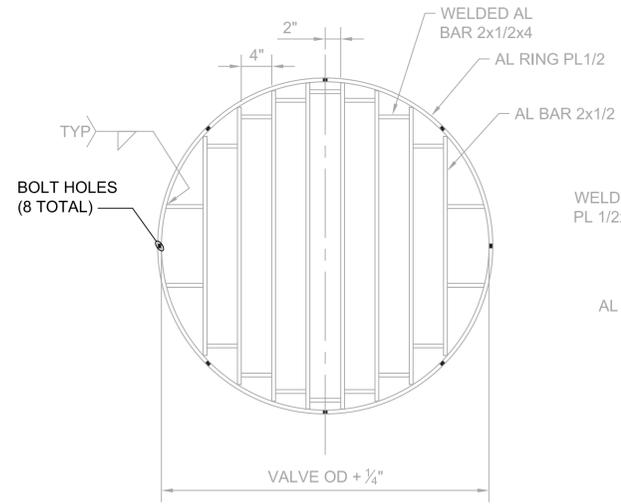
- 1 VALVE - OWNER FURNISHED
  - A. INSTALL WALL GASKET
  - B. PROVIDE AND INSTALL (20) 3/4"DIA SS EXPANSION ANCHORS, EMBED 4 3/4" MIN IN WALL AS INDICATED IN THE SUBMITTAL
- 2 TRASH RACK - OWNER FURNISHED
  - A. INSTALL WITH (8) 3/8"DIA SS CONTRACTOR FURNISHED FASTENERS
- 3 VALVE SUPPORT POST - OWNER FURNISHED
  - A. PROVIDE AND CONNECT MAKEUP POST PIECE TO OWNER FURNISHED POST SECTION
  - B. PROVIDE AND CONNECT FINISHED POST BASE TO CONCRETE SLAB WITH (4) 3/8"DIA EXPANSION ANCHORS AS INDICATED
  - C. INSTALL OWNER-FURNISHED GASKET AND PIPE CLAMP FASTEN WITH CONTRACTOR FURNISHED SS BOLTS AS INDICATED



**SECTION A**  
SCALE: 1/2" = 1'-0" S-002

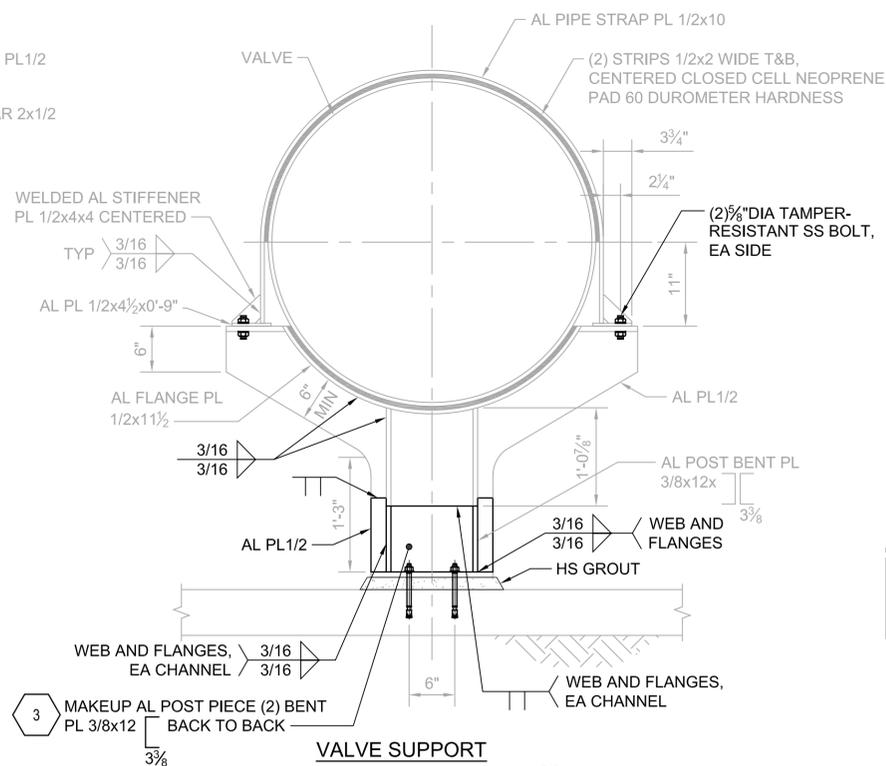


**SECTION B**  
SCALE: 1/2" = 1'-0" S-002

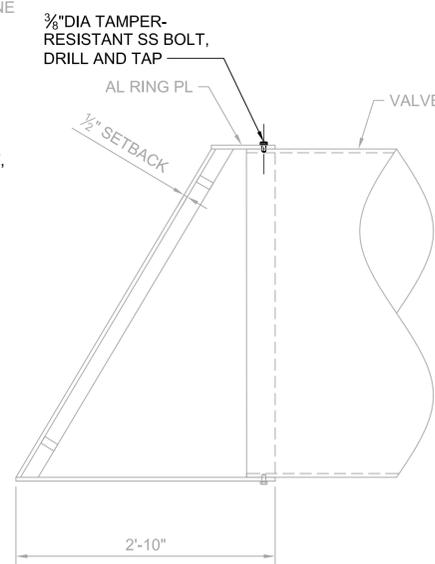


**NOTE:**  
1. COAT SS BOLTS WITH ANTI-SEIZE OR ANTI-GALLING COMPOUND - JET LUBE 550, E-Z BREAK OR APPROVED EQUAL

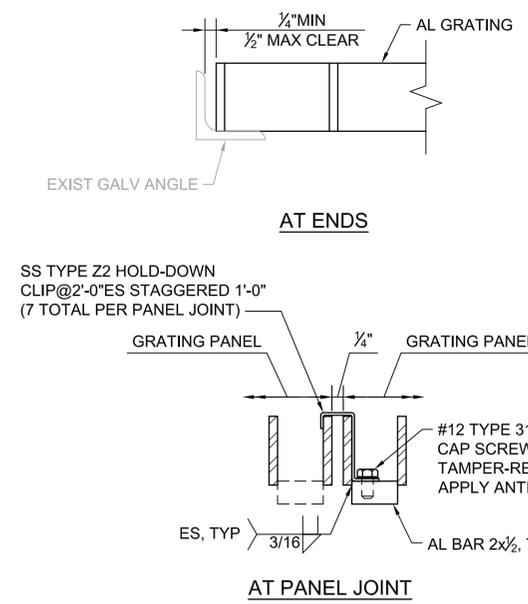
**VALVE TRASH RACK DETAIL 1**  
SCALE: 1" = 1'-0"



**VALVE SUPPORT DETAIL 2**  
SCALE: 1" = 1'-0"



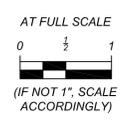
**TRASH RACK DETAIL 3**  
SCALE: NTS TY



**GRATING SUPPORT DETAIL 4**  
SCALE: 6" = 1'-0" TYP

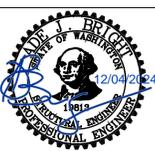
- NOTES:**
- GRATING SHALL BE NON-SLIP WITH BEARING BARS SPACED AT 1 1/16" OC AND CROSS BARS AT 4" OC.
  - BAND ALL EDGES OF GRATING. PROVIDE EDGE BAND 3/16" THICK WITH DEPTH 1/4" LESS THAN GRATING DEPTH. INSTALL EDGE BAND FLUSH WITH TOP OF GRATING WELD ALL BEARING BARS TO EDGE BAND.
  - ANCHOR ALL GRATING SECTIONS TO SUPPORTS WITH A MINIMUM OF FOUR STAINLESS STEEL CLIPS, FASTENERS OR ANCHORS.

**DECEMBER 2024 BID SET**



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE 12/04/2024	SCALE AS SHOWN
DESIGNED	AJB	CHECKED II
DRAWN	SL	PROJECT NAME
FIELD BOOKS	DRAWING NAME	S-003.dwg



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT  
LEACH CREEK STORMWATER HOLDING BASIN MODIFICATIONS REBID II  
OUTLET STRUCTURE  
SECTIONS AND DETAILS - 1

DRAWING NO.	S-003
WBS NO.	ES24-0258F ENV-03031-01
SHEET NO.	11 OF 11