



PORT OF GRAYS HARBOR

28th Street Boat Launch Improvements Construction Phase II CONTRACT No. 1836

PORT COMMISSIONERS:

JACK THOMPSON
CHUCK CALDWELL
STAN PINNICK

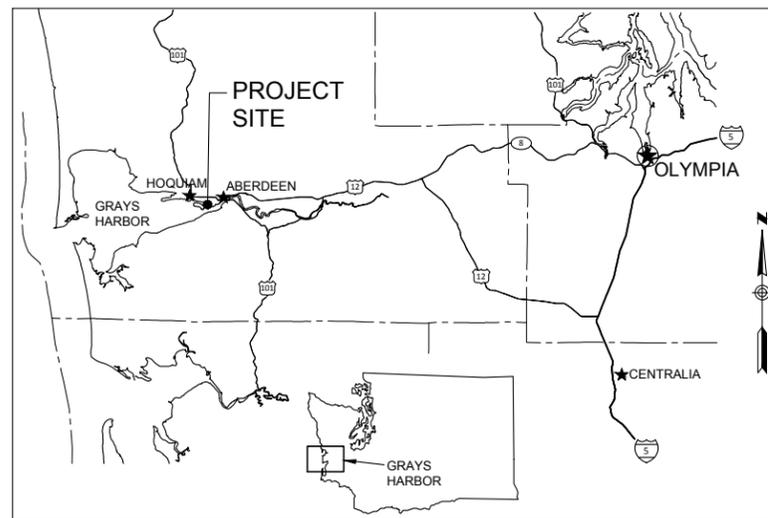
PORT STAFF:

GARY NELSON
Executive Director

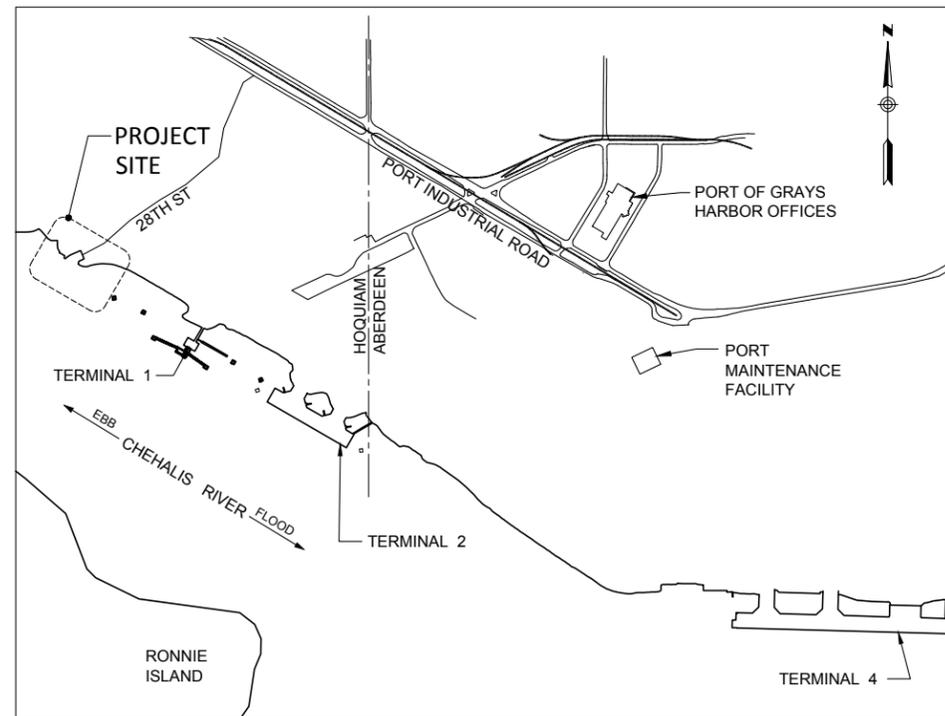
LEONARD BARNES
Deputy Executive Director

MICHAEL JOHNSON
Contracts Administrator

RANDY LEWIS
Director of Environmental
and Engineering Services



VICINITY MAP



LOCATION MAP

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BID DOCUMENTS

MARK	REVISION DESCRIPTION	BY	APP.	DATE

33301 9th Avenue South, Suite 300
Federal Way, Washington 98003-2600
(206) 431-2300 Fax: (206) 431-2250



DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB

**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

COVER SHEET, VICINITY MAP, DRAWING LIST

DRAWING NO. **G-1**
PROJECT NO. FAWAT-12-145
DATE: 3/22/17
SHEET NO. 1 OF 48

GENERAL NOTES

GENERAL

- THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT NECESSARILY COMPLETE FOR ALL CONSTRUCTION PURPOSES. VERIFY INFORMATION SHOWN ON THE DRAWINGS WITH OTHER CONTRACT DOCUMENTS AND BRING ANY CONFLICTS TO THE ATTENTION OF THE PORT BEFORE BEGINNING THE AFFECTED WORK. THE PORT WILL RESOLVE CONFLICTS.
- THE BOAT LAUNCH MAY BE IN OPERATION DURING A PORTION OF THE WORK DESCRIBED IN THE CONTRACT DOCUMENTS. COORDINATE AND SCHEDULE WORK WITH THE PORT. KEEP PERSONNEL, MATERIALS, AND EQUIPMENT CLEAR OF PUBLIC BOAT LAUNCH ACTIVITIES AND WITHIN AREA(S) OF CONSTRUCTION DESIGNATED.
- VERIFY DIMENSIONS AND DETAILS, EXISTING AND NEW, PRIOR TO FABRICATION OR CONSTRUCTION.
- ANY DAMAGE BY THE CONTRACTOR TO EXISTING FEATURES, STRUCTURES, OR UTILITIES THAT ARE TO REMAIN SHALL BE REPAIRED AT NO EXPENSE TO THE PORT.
- DO NOT ALLOW DEBRIS OF ANY KIND TO FALL INTO THE WATER. IMMEDIATELY REMOVE ALL DEBRIS THAT FALLS INTO THE WATER.
- SUPPLY, INSTALL, AND MAINTAIN AT ALL TIMES FLOATING DEBRIS BOOMS AROUND ALL IN WATER AND OVERWATER WORK AREAS.
- PERFORM WORK IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS AND ALL PERTINENT AND APPLICABLE BEST MANAGEMENT PRACTICES.

REFERENCE DRAWINGS

REFERENCE DRAWINGS ARE AVAILABLE FOR THE PHASE I WORK, CONTACT PORT FOR A COPY. MAKE SITE VISITS AND OBSERVATIONS SUFFICIENT TO VERIFY DETAILS FOR ALL WORK BEFORE CONSTRUCTION ACTIVITIES.

CODES AND STANDARDS

- USE THE MOST CURRENT EDITIONS OF CODES AND STANDARDS UNLESS OTHERWISE NOTED. FOR CONFLICTS BETWEEN CODES AND/OR STANDARDS, THE MORE STRICT PROVISION, AS DETERMINED BY THE PORT, SHALL APPLY.
- METHODS AND MATERIALS: CONFORM TO THE INTERNATIONAL BUILDING CODE (IBC) 2012 EDITION, AS AMENDED AND ADOPTED BY THE CITY OF HOQUIAM.
- CONCRETE WORK: CONFORM TO THE AMERICAN CONCRETE INSTITUTE (ACI) "STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301), 2010 EDITION, AND "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY" (ACI 318), 2014 EDITION.
- STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION: CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (AISC 360) 2010 EDITION AND "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 303) 2010 EDITION.
- WELDING OF STRUCTURAL AND MISCELLANEOUS STEEL: CONFORM TO THE AMERICAN WELDING SOCIETY (AWS) "STRUCTURAL WELDING CODE - STEEL" (AWS D1.1), 2010 EDITION.
- TIMBER ELEMENTS: CONFORM TO THE WEST COAST LUMBER INSPECTION BUREAU "STANDARD GRADING RULES FOR WEST COAST LUMBER - NO. 17", CURRENT EDITION.
- TIMBER CONSTRUCTION: CONFORM TO THE AMERICAN WOOD COUNCIL "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION", 2012 EDITION.
- TIMBER PRESERVATIVE TREATMENT AND TREATED TIMBER HANDLING: CONFORM TO THE AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) "WOOD PRESERVATIVE STANDARDS", CURRENT EDITION, AND THE WESTERN WOOD PRESERVERS INSTITUTE (WWPI) "BEST MANAGEMENT PRACTICES FOR THE USE OF TREATED WOOD IN AQUATIC AND WETLAND ENVIRONMENTS" (BMPs), CURRENT EDITION.
- STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (M41-10), 2014 EDITION, BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION.

DEMOLITION

- CONTAIN REMOVAL AND DEMOLITION WITHIN THE LIMITS DESIGNATED ON THE DRAWINGS. DO NOT DAMAGE EXISTING STRUCTURES, UTILITIES, OR FACILITIES TO REMAIN DURING REMOVAL OR DEMOLITION WORK. SEE GENERAL NOTE 4.
- SALVAGE EXISTING CONCRETE RAMP PLANKS AS DIRECTED BY THE PORT. CONSTRUCTION EQUIPMENT SHALL NOT BE DRIVEN ON EXISTING CONCRETE RAMP PLANK TO BE SALVAGE.

- ALL REMOVED OR DEMOLISHED MATERIALS, EXCEPT AS NOTED, BECOME THE PROPERTY OF THE CONTRACTOR. COMPLETELY REMOVE, HANDLE, AND DISPOSE OF ALL SUCH MATERIALS, INCLUDING CREOSOTE-TREATED AND ASBESTOS-CONTAINING MATERIALS (ACM), IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
- A HAZARDOUS MATERIALS SURVEY HAS NOT BEEN CONDUCTED AT THIS SITE, BUT IT IS BELIEVED THE PROBABILITY OF ENCOUNTERING CREOSOTE-TREATED OR ACM MATERIALS IS LOW.

STEEL PILING

- GENERAL
 - STEEL PILING: CONFORM TO ASTM A 252, GRADE 3 WITH A MINIMUM YIELD STRENGTH OF 50 KSI.
 - LIMIT THE NUMBER OF SPLICES TO ONE PER PILE WITH A MINIMUM LENGTH OF 10 FEET PER PIECE. SPLICE PILES WITH COMPLETE PENETRATION BUTT WELDS IN ACCORDANCE WITH AWS. PERFORM SPLICES IN A PERMANENT AISC APPROVED FABRICATION FACILITY UNLESS OTHERWISE APPROVED BY THE PORT.
 - HOT-DIP GALVANIZE GUIDE PILES IN ACCORDANCE WITH THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) SPECIFICATIONS ASTM A123 AND ASTM A153.
 - COAT GUIDE PILES AFTER GALVANIZING AND COAT GROUNDING PILES IN ACCORDANCE WITH CONTRACT DOCUMENTS.
 - SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- DRIVING
 - INSTALL PILING TO THE TIP ELEVATIONS INDICATED ON THE DRAWINGS.
 - INSTALL PILING WITH A VIBRATORY HAMMER.
 - KEEP PILE INSTALLATION LOGS AND PROVIDE TO THE PORT DAILY. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 - REMOVE ANY PILE DAMAGED DURING HANDLING OR INSTALLATION OR INSTALLED IN THE WRONG LOCATION AND INSTALL ANOTHER PILE IN ITS PLACE AT NO ADDITIONAL COST TO THE PORT.
- CUT-OFF
 - CUTOFF PILES LEVEL UNLESS OTHERWISE INDICATED. FOR A PILE PROVIDING BEARING, INSTALL BEARING PLATE TO PROVIDE FULL BEARING.
 - DO NOT ALLOW PILE CUT OFFS OR CUTTING DEBRIS TO FALL INTO THE WATER OR INSIDE THE PIPE PILE.

CAST-IN-PLACE CONCRETE

- CAST-IN-PLACE CONCRETE: MINIMUM COMPRESSIVE STRENGTH = 5,000 PSI, MAXIMUM RATIO OF WATER TO CEMENTITIOUS MATERIALS = 0.40. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- REINFORCING STEEL: ASTM A 706 GRADE 60, DEFORMED, GALVANIZED PER ASTM A 767.

STRUCTURAL STEEL

- SHAPES, PLATES, AND BARS: ASTM A 572, YIELD STRENGTH = 50 KSI, TYPICAL. ANGLES AND CHANNELS SHALL BE ASTM A 36, YIELD STRENGTH = 36 KSI.
- WIDE FLANGE STRUCTURAL SECTIONS (W): ASTM A992
- HOLLOW STRUCTURAL SECTIONS (HSS): ASTM A 500, GRADE C, YIELD STRENGTH = 50 KSI
- PIPE: ASTM A 53, GRADE B
- FASTENERS: ASTM A 307 GRADE A BOLTS, ASTM A 563 NUTS, AND ASTM F 844 WASHERS. PROVIDE MALLEABLE IRON WASHERS UNDER ALL NUTS AND BOLT HEADS BEARING ON TIMBER OR PLASTIC UNLESS NOTED OTHERWISE.
- EMBEDDED THREADED RODS (ALSO CALLED ANCHOR BOLTS): ASTM F 1554, GRADE 55
- HOT-DIP GALVANIZE ALL MATERIALS IN ACCORDANCE WITH ASTM A 123, ASTM A 153, OR ASTM F 2329 AS APPLICABLE. GALVANIZE ITEMS AFTER FABRICATION.
- REPAIR DAMAGE TO HOT-DIP GALVANIZING IN ACCORDANCE WITH ASTM A 780, ANNEX A1.
- COAT FABRICATIONS AFTER GALVANIZING WHERE INDICATED.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

STRUCTURAL TIMBER

- GENERAL
 - MATERIAL: PACIFIC COAST DOUGLAS FIR, GRADE NO. 1 PER WCLIB.
 - SURFACE TIMBER AS NOTED ON THE DRAWINGS, SURFACE FOUR SIDES UNLESS NOTED OTHERWISE.
 - BOLT HOLES: 1/16 INCH LARGER THAN THE BOLT DIAMETER.
 - TIMBER PRESERVATIVE TREATMENT PRESSURE-TREAT TIMBER WITH WATERBORNE PRESERVATIVES IN ACCORDANCE WITH AWPA STANDARD U1 TO THE REQUIREMENTS OF USE CATEGORY 5A (UC5A). INCORPORATE AND ADHERE TO THE BMPs SET FORTH BY THE WWPI.
 - HANDLING AND STORAGE AFTER TREATMENT, CARE FOR PRESSURE-TREATED TIMBER IN ACCORDANCE WITH AWPA STANDARD M4.
 - SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

STRUCTURAL COMPOSITES

- PLASTIC TIMBER PILE CAPS: FIBERFORCE PLASTIC MATERIAL, BLACK IN COLOR, PRODUCED BY BEDFORD TECHNOLOGY (1-800-721-9037) OR EQUAL APPROVED BY THE ENGINEER AT TIME OF BID.
- UHMP-PE: ASTM D 4020 WITH UV-STABILIZATION, BLACK IN COLOR.
- PLASTIC SHIM MATERIAL: SEAPILE COMPOSITE PLASTIC PILES, PRODUCED BY TRELLEBORG, (1-540-667-5191) OR EQUAL APPROVED BY ENGINEER AT TIME OF BID.
- HOT-DIP GALVANIZE ALL HARDWARE.
- BOLT HOLES: 1/16 INCH LARGER THAN THE BOLT DIAMETER.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

SPECIAL INSPECTIONS

ELEMENTS REQUIRING SPECIAL INSPECTIONS PER IBC CHAPTER 17 ARE AS FOLLOWS.

- PILING
- CONCRETE
- REINFORCING STEEL
- BOLTS INSTALLED IN CONCRETE
- STRUCTURAL WELDING
- DRILLED-IN CONCRETE DOWELS

DATUMS

- VERTICAL CONTROL IS CITY OF HOQUIAM MLLW = EL 0.00.
- PORT OF GRAYS HARBOR STATE TIDELANDS HORIZONTAL DATUM.

CONTRACTOR-DESIGNED STRUCTURES

THE FOLLOWING UNFACTORED HORIZONTAL DESIGN LOADS SHALL BE CONSIDERED FOR THE STRUCTURES DESIGNED AND PROVIDED BY THE CONTRACTOR.

FLOATS (ANY DIRECTION)	
A. DEBRIS IMPACT, PLUS	5.6 KIPS
B. COMBINED WAVE AND CURRENT	400 PLF

DESIGN CRITERIA

THE FOLLOWING UNFACTORED HORIZONTAL DESIGN LOADS WERE CONSIDERED FOR THE GUIDE PILING DESIGN.

FLOATS	
B. DEBRIS IMPACT	5.6 KIPS
C. COMBINED WAVE AND CURRENT	400 PLF ON FLOAT 180 LBS ON PILE

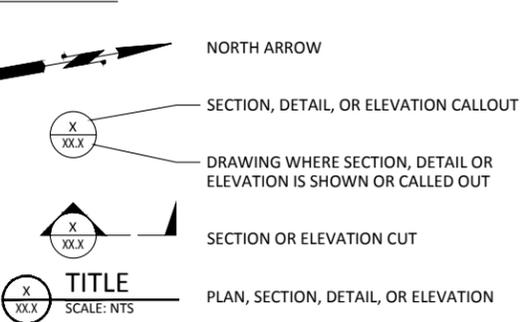
ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE
ACM	ASBESTOS-CONTAINING MATERIALS
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AITC	AMERICAN INSTITUTE OF TIMBER CONSTRUCTION
ALT	ALTERNATE
API	AMERICAN PETROLEUM INSTITUTE
APPROX	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWPA	AMERICAN WOOD PROTECTION ASSOCIATION
AWS	AMERICAN WELDING SOCIETY
BMP	BEST MANAGEMENT PRACTICES
BOT	BOTTOM
BTWN	BETWEEN
CDF	CONTROLLED DENSITY FILL
CIP	CAST-IN-PLACE
CJ	CONSTRUCTION JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTER LINE
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CPP	CONCRETE PAVEMENT PRESERVATION
DIA	DIAMETER
∅	DIAMETER
DWG	DRAWING
E	EAST, EASTING
EA	EACH
EF	EACH FACE
EHW	EXTREME HIGH WATER
EL	ELEVATION
ELW	EXTREME LOW WATER
ELEV	ELEVATION
EQ	EQUAL
EXIST	EXISTING
EW	EACH WAY
FG	FINISHED GRADE
FT	FEET
GR	GRADE
GV	GATE VALVE
H	HORIZONTAL
HDG	HOT-DIP GALVANIZE(D)
HS	HIGH STRENGTH
IBC	INTERNATIONAL BUILDING CODE
IE	INVERT ELEVATION
ID	INNER DIAMETER, IDENTIFICATION
IN	INCH
K, KIP	1000 POUNDS
KLF	KIPS PER LINEAL FOOT
KSI	KIP PER SQUARE INCH
LB(S)	POUNDS
LF	LINEAL FEET
LONG	LONGITUDINAL
MB	MACHINE BOLT
MAG	MAG SURVEY NAIL
MHHW	MEAN HIGHER HIGH WATER
MIN	MINIMUM
MLLW	MEAN LOWER LOW WATER
N	NORTH, NORTHING
NO.#	NUMBER
NTS	NOT TO SCALE
NW	NORTHWEST
OC	ON CENTER
OD	OUTER DIAMETER

ABBREVIATIONS CONTINUED

PCF	POUNDS PER CUBIC FOOT
PGH	PORT OF GRAYS HARBOR
PL	PLATE
POC	POINT OF CONNECTION
PSI	POUNDS PER SQUARE INCH
PT	POINT
QTY	QUANTITY
REQ'D	REQUIRED
RPC	RED PLASTIC CAP
S	SLOPE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SE	SOUTHEAST
SHT	SHEET
SIM	SIMILAR
SPA	SPACE(S)
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STD	STANDARD
TOA	TOP OF ASPHALT
TOC	TOP OF CONCRETE
TR	THRUST RESTRAINT
TYP	TYPICAL
UHMW-PE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE
V	VERTICAL
W	WEST
W/	WITH
WCLIB	WEST COAST LUMBER INSPECTION BUREAU
WQCB	WATER QUALITY CATCH BASIN
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WWPI	WESTERN WOOD PRESERVERS INSTITUTE
X-ING	CROSSING
Z	ELEVATION

LEGEND



BID DOCUMENTS

PORT OF GRAYS HARBOR 28TH STREET BOAT LAUNCH IMPROVEMENTS CONSTRUCTION PHASE II

GENERAL NOTES

DRAWING NO.	G-2
PROJECT NO.	FAWAT-12-145
DATE:	3/22/17
SHEET NO.	2 OF 48

MARK	REVISION	DESCRIPTION	BY	APP.	DATE

BergerABAM
33301 9th Avenue South, Suite 300
Federal Way, Washington 98003-2600
(206) 431-2300 Fax: (206) 431-2250



DRAWN BY	<u>MDB</u>
DESIGN BY	<u>GDN</u>
CHECK BY	<u>CSB</u>
PROJ MGR	<u>CSB</u>

SECTION 31 32 11 - TEMPORARY EROSION & SEDIMENTATION CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. THIS ITEM CONSISTS OF PLANNING, INSTALLING, INSPECTING, MAINTAINING, AND REMOVING TEMPORARY EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) AS SHOWN ON THE DRAWINGS, REQUIRED BY DEPARTMENT OF ECOLOGY, OR AS ORDERED BY THE ENGINEER TO PREVENT POLLUTION OF AIR AND WATER, AND CONTROL, RESPOND TO, AND DISPOSE OF ERODED SEDIMENT AND TURBID WATER DURING THE LIFE OF THE CONTRACT
- B. IN ORDER TO COMPLY WITH THE REQUIREMENTS OF THIS SECTION, THE CONTRACTOR SHALL:
 1. DEVELOP AND SUBMIT A CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN (CESCP).
 2. DEVELOP AND SUBMIT A CONSTRUCTION SWPPP IN ACCORDANCE WITH REQUIREMENTS DESCRIBED IN STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, VOLUME II, TITLED CONSTRUCTION STORMWATER POLLUTION PREVENT, 2012.
 3. ARRANGE AN ON-SITE MEETING AT A MUTUALLY AGREEABLE DATE AND TIME WITH THE PORT AND THE ENGINEER PRIOR TO BEGINNING ANY SITE WORK;
 4. REVISE AND MODIFY THE CONSTRUCTION SWPPP DURING THE LIFE OF THE CONTRACT;
 5. INSTALL, MAINTAIN, AND REMOVE ALL EROSION PREVENTION, CONTAINMENT, AND COUNTERMEASURES BMPs DURING THE LIFE OF THE CONTRACT;
 6. CONTAIN, CLEANUP AND PROPERLY MANAGE OR DISPOSE OF ALL DISPLACED SEDIMENTS AND TURBID WATER;
 7. PERFORM OTHER WORK SHOWN ON THE CONTRACT PLANS OR AS DIRECTED BY THE ENGINEER.
 8. PROPERLY INSPECT CONSTRUCTION SWPPP REQUIREMENTS INCLUDING BMPs AS REQUIRED; FACILITATE, PARTICIPATE IN, AND IMPLEMENT DIRECTED CORRECTIVE ACTIONS RESULTING FROM INSPECTIONS CONDUCTED BY OTHERS INCLUDING OUTSIDE AGENCIES AND PORT EMPLOYEES/CONSULTANTS.

1.02 SUBMITTALS

- A. AS PART OF THE REQUIRED PRECONSTRUCTION SUBMITTALS, THE CONTRACTOR SHALL SUBMIT A CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN (CESCP) AND A CONSTRUCTION SWPPP.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. THE PROVISIONS OF THIS SECTION SHALL APPLY TO THE CONTRACTOR, SUBCONTRACTORS AT ALL TIERS, SUPPLIERS AND ALL OTHERS WHO MAY HAVE ACCESS TO THE WORK SITE BY WAY OF THE CONTRACTOR'S ACTIVITIES.
- B. FAILURE TO INSTALL, MAINTAIN, AND/OR REMOVE BMPs SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, OR BY ORDER OF THE ENGINEER; OR FAILURE TO COMPLY, IMPLEMENT AND MAINTAIN ANY PROVISIONS AND REQUIREMENTS OF THIS SECTION; OR FAILURE TO CONDUCT PROJECT OPERATIONS IN ACCORDANCE WITH THIS SECTION WILL RESULT IN THE SUSPENSION OF THE CONTRACTOR'S OPERATIONS BY THE ENGINEER.
- C. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGES, FINES, LEVIES, OR JUDGMENTS INCURRED AS A RESULT OF CONTRACTOR, SUBCONTRACTOR, OR SUPPLIER NEGLIGENCE IN COMPLYING WITH THE REQUIREMENTS OF THIS SECTION.
- D. ANY DAMAGES, FINES, LEVIES, OR JUDGMENTS INCURRED AS A RESULT OF CONTRACTOR, SUBCONTRACTOR, OR SUPPLIER NEGLIGENCE IN COMPLYING WITH THE REQUIREMENTS OF THIS SECTION WILL BE DEDUCTED FROM PAYMENT DUE BY MODIFICATION.
- E. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY SCHEDULE IMPACTS FROM DAMAGES, FINES, LEVIES, JUDGMENTS, OR STOP WORK ORDERS INCURRED AS A RESULT OF CONTRACTOR, SUBCONTRACTOR, OR SUPPLIER NEGLIGENCE IN COMPLYING WITH THE REQUIREMENTS OF THIS SECTION. THE PROJECT SCHEDULE WILL NOT BE CHANGED TO ACCOMMODATE THE TIME LOST.
- F. CONTRACTOR SHALL NOT CLEAR, GRUB, GRADE, OR PERFORM ANY EARTHWORK AFTER NOTICE TO PROCEED UNTIL THE FOLLOWING HAS BEEN INSTALLED PER STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, VOLUME II, CHAPTER 4, TITLED CONSTRUCTION STORMWATER POLLUTION PREVENT, 2012, OR AS DIRECTED BY THE ENGINEER:
 1. SILT FENCE OR OTHER PERIMETER BARRIER CONTROLS ARE IN PLACE, DOE BMP C233;
 2. AREAS NOT TO BE DISTURBED ARE DELINEATED WITH SAFETY FENCE, DOE BMP C103;
 3. ALL CONSTRUCTION ENTRANCES ARE STABILIZED, DOE BMP C105;
 4. CATCH BASIN INSERTS ARE INSTALLED IN ALL CATCH BASINS THAT MAY RECEIVE DRAINAGE FROM THE WORK AREA, DOE BMP C220;
 5. OTHER BMPs THAT MAY BE REQUIRED DURING COURSE OF CONSTRUCTION:
 - a. PLASTIC SHEETING, DOE BMP C123
 - b. TEMPORARY AND PERMANENT SEEDING, DOE BMP C120
 - c. SODDING, DOE BMP C124
 - d. TOPSOILING / COMPOSTING, DOE BMP C125
 6. MATERIALS ON HAND, IN QUANTITIES SUFFICIENT TO COVER ALL BARE SOIL, DIVERT ALL FLOWS, CONTAIN ALL SEDIMENTS, AND PREVENT TURBID DISCHARGES FROM THE SITE DURING ALL STAGES OF CONSTRUCTION. THESE MATERIALS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
 - a. MATERIALS ON HAND, DOE BMP C150
 - b. DUST CONTROL, DOE BMP C140
 - c. SAW-CUTTING / SURFACE POLLUTION PREVENTION, DOE BMP C126
 - d. WATTLES, DOE BMP C235

1.04 AUTHORITY OF ENGINEER

- A. THE ENGINEER HAS THE AUTHORITY TO LIMIT THE SURFACE AREA OF ERODIBLE EARTH MATERIAL EXPOSED BY DEMOLITION OR REMOVAL OF ASPHALT PAVEMENT, TO LIMIT THE SURFACE AREA OF ERODIBLE EARTH MATERIAL EXPOSED BY EXCAVATION, BORROW AND FILL OPERATIONS, AND TO DIRECT THE CONTRACTOR TO PROVIDE IMMEDIATE PERMANENT OR TEMPORARY POLLUTION CONTROL MEASURES TO MINIMIZE CONTAMINATION OF ADJACENT WATERCOURSES OR AREAS OF WATER IMPOUNDMENT.

- B. IN THE EVENT THAT TEMPORARY EROSION AND POLLUTION CONTROL MEASURES ARE REQUIRED DUE TO THE CONTRACTOR'S NEGLIGENCE, CARELESSNESS, OR FAILURE TO INSTALL PERMANENT CONTROLS AS A PART OF THE WORK AS SCHEDULED OR ARE ORDERED BY THE ENGINEER, SUCH WORK SHALL BE PERFORMED BY THE CONTRACTOR AT HIS/HER OWN EXPENSE.
- C. THE ENGINEER MAY INCREASE OR DECREASE THE AREA OF ERODIBLE EARTH MATERIAL TO BE EXPOSED AT ONE TIME AS DETERMINED BY ANALYSIS OF PROJECT CONDITIONS.
- D. IN THE EVENT THAT AREAS ADJACENT TO THE WORK AREA ARE SUFFERING DEGRADATION DUE TO EROSION, SEDIMENT DEPOSIT, WATER FLOWS, OR OTHER CAUSES, THE ENGINEER MAY STOP CONSTRUCTION ACTIVITIES UNTIL THE SITUATION IS RECTIFIED.

PART 2 - PRODUCTS - NOT USED.

AS SPECIFIED IN STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, VOLUME II, CHAPTER 4, TITLED CONSTRUCTION STORMWATER POLLUTION PREVENT, 2012

PART 3 - EXECUTION

3.01 GENERAL

- A. IN THE EVENT OF CONFLICT BETWEEN THESE REQUIREMENTS AND POLLUTION CONTROL LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, OR LOCAL AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

3.02 CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN (CESCP)

- A. IN ORDER TO COMPLY WITH THESE REQUIREMENTS, THE CONTRACTOR SHALL INCLUDE AND ADDRESS THE FOLLOWING IN THE CESCP:
 1. SITE DESCRIPTION AND DRAWINGS
 - a. INCLUDED IN THE CESCP SHALL BE A WRITTEN DESCRIPTION OF THE CONSTRUCTION SITE, INCLUDING LOCATION OF STAGING AREAS, STOCKPILE AREAS, MATERIAL STORAGE AREAS, NATURAL AND CONSTRUCTED DRAINAGE SYSTEMS WITHIN THE WORK AREA AND STAGING AREAS.
 - b. DRAWINGS SHALL BE INCLUDED IN THE CESCP WHICH SHOW THE LOCATION OF THE CONSTRUCTION SITE, INCLUDING LOCATION OF STAGING AREAS, STOCKPILE AREAS, MATERIAL STORAGE AREAS, NATURAL AND CONSTRUCTED DRAINAGE SYSTEMS WITHIN THE WORK AREA AND STAGING AREAS.
 - c. THE DRAWINGS SHALL SHOW LOCATIONS OF BMPs DURING EACH PHASE OF CONSTRUCTION AS IDENTIFIED BY THE CONTRACTOR IN THE PROJECT SCHEDULE.
 2. CONTRACTOR EROSION AND SEDIMENT CONTROL PERSONNEL
 - a. THE CONTRACTOR SHALL DESIGNATE ONE EMPLOYEE AS THE RESPONSIBLE REPRESENTATIVE IN CHARGE OF EROSION AND SEDIMENTATION CONTROL.
 - b. THE DESIGNATED EMPLOYEE SHALL BE THE CONTRACTOR EROSION AND SEDIMENT CONTROL LEAD (CESCL) WHO IS RESPONSIBLE FOR ENSURING COMPLIANCE WITH ALL REQUIREMENTS OF THIS SECTION.
 - c. BY NOTICE TO PROCEED, THE CESCL SHALL HAVE SUCCESSFULLY COMPLETED THE "STORMWATER: CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPs) FIELD TRAINING" COURSE OFFERED BY THE ASSOCIATED GENERAL CONTRACTORS EDUCATION FOUNDATION (206 284-4500), OR OTHER COURSE APPROVED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY AND AS DIRECTED BY THE ENGINEER.
 - d. THE CESCL SHALL HAVE AUTHORITY TO ACT ON BEHALF OF THE CONTRACTOR AND SHALL BE AVAILABLE, ON CALL, 24 HOURS PER DAY THROUGHOUT THE PERIOD OF CONSTRUCTION.
 - e. THE CESCP SHALL INCLUDE THE NAME, TELEPHONE NUMBER, FAX NUMBER, AND ADDRESS OF THE DESIGNATED CESCL.
 - f. DUTIES AND RESPONSIBILITIES OF THE CESCL SHALL INCLUDE:
 - 1) MAINTAINING THE CESCP, AND ANY ASSOCIATED PERMITS AND PLANS;
 - 2) DIRECTING BMP INSTALLATION, INSPECTION, MAINTENANCE, MODIFICATION, AND REMOVAL;
 - 3) AVAILABILITY 24 HOURS PER DAY, 7 DAYS PER WEEK BY TELEPHONE;
 - 4) UPDATING ALL DRAWINGS WITH CHANGES MADE TO THE PLAN;
 - 5) KEEPING DAILY LOGS;
 - 6) PREPARE AND SUBMIT FOR APPROVAL A CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN (CESCP);
 - 7) IDENTIFY THE POINTS WHERE STORM WATER RUNOFF, IF ANY, POTENTIALLY LEAVES THE SITE, IS COLLECTED IN A SURFACE WATER CONVEYANCE SYSTEM AND TAKE CORRECTIVE MEASURES TO PREVENT THIS FROM OCCURRING;
 - 8) IF WATER SHEET FLOWS FROM THE SITE, TAKE CORRECTIVE MEASURE TO PREVENT THIS FROM OCCURRING;
 - 9) INSPECT CESCP REQUIREMENTS INCLUDING BMPs AS REQUIRED TO ENSURE ADEQUACY; FACILITATE, PARTICIPATE IN, AND TAKE CORRECTIVE ACTIONS RESULTING FROM INSPECTIONS PERFORMED BY OUTSIDE AGENCIES, PORT EMPLOYEES, AND PORT CONSULTANTS.

3. SCHEDULE

- a. THE CESCP SHALL INCLUDE:
 - 1) SCHEDULES FOR ACCOMPLISHMENT OF TEMPORARY AND PERMANENT EROSION CONTROL WORK, AS ARE APPLICABLE FOR CLEARING AND GRUBBING; GRADING; CONSTRUCTION; DEMOLITION; PAVING; STRUCTURES AT WATERCOURSES, SAW CUTTING, AND DEWATERING;
 - 2) PROPOSED METHOD OF EROSION AND DUST CONTROL AND A PLAN FOR DISPOSAL OF WASTE MATERIALS;
 - 3) ESTIMATED REMOVAL DATE OF ALL TEMPORARY BMPs;

- 4) ESTIMATED DATE OF FINAL SITE STABILIZATION.
- b. EROSION CONTROL WORK ACTIVITIES CONSISTENT WITH THE CESCP SHALL BE INCLUDED IN THE PROJECT SCHEDULE.
- 4. BMP INSTALLATION
 - a. THE CESCP SHALL INCLUDE INSTALLATION INSTRUCTIONS AND DETAILS FOR EACH BMP USED DURING THE LIFE OF THE PROJECT;
 - b. INSTALLATION INSTRUCTIONS AND DETAILS SHALL BE EQUIVALENT TO THE:
 - c. "STORMWATER MANAGEMENT MANUAL FOR THE PUGET SOUND REGION," DEPT. OF ECOLOGY; 2012 (CURRENT VERSION)
- 5. BMP MAINTENANCE
 - 6. THE CESCP SHALL INCLUDE A DESCRIPTION OF THE MAINTENANCE AND INSPECTION PROCEDURES TO BE USED FOR THE LIFE OF THE PROJECT.
 - a. BMPs SHALL BE MAINTAINED FOR THE LIFE OF THE PROJECT OR UNTIL REMOVED BY ORDER OF THE ENGINEER;
 - b. BMPs SHALL BE MAINTAINED DURING ALL SUSPENSIONS OF WORK AND ALL NON-WORK PERIODS;
 - c. BMPs SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION AND IN ACCORDANCE WITH THE APPROVED CESCP;
 - d. SEDIMENTS REMOVED DURING BMP MAINTENANCE SHALL BE PLACED AWAY FROM NATURAL AND CONSTRUCTED STORM WATER CONVEYANCES AND DISPOSED OF OFF SITE.
- 7. BMP INSPECTION
 - a. AT A MINIMUM, INSPECT ALL TESC BMPs:
 - 1) WEEKLY AND AFTER ANY MEASURABLE RAIN EVENT (0.5 INCH OR GREATER) BETWEEN APRIL 1ST AND SEPTEMBER 31ST;
 - 2) DAILY AND AFTER ANY MEASURABLE RAIN EVENT (0.5 INCH OR GREATER) BETWEEN OCTOBER 1ST AND MARCH 31ST.
 - b. DEFICIENCIES IDENTIFIED DURING THE INSPECTION SHALL BE CORRECTED WITHIN 24 HOURS OR AS DIRECTED BY THE ENGINEER.
 - c. NOTE REPAIRS OR IMPROVEMENTS NEEDED, IF ANY, AND NOTIFY CESCL OR SITE PROJECT SUPERINTENDENT TO IMPLEMENT IMPROVEMENTS;
 - d. OBSERVE SITE DURING STORMS TO ENSURE RUNOFF IS NOT LEAVING THE SITE, AND TAKE CORRECTIVE MEASURES TO PREVENT IT FROM CONTINUING IF IT IS;
 - e. IMPLEMENT ADDITIONAL BMPs, IF NEEDED, TO ADDRESS SITE-SPECIFIC EROSION CONTROL;
 - f. INSPECT STREETS SURROUNDING SITE FOR DIRT TRACKING;
 - g. INSPECT FOR DUST DURING DRY PERIODS.
- 8. RECORD KEEPING
 - a. REPORTS SUMMARIZING THE SCOPE OF INSPECTIONS, THE PERSONNEL CONDUCTING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE CESCP, AND ACTIONS TAKEN AS A RESULT OF THESE INSPECTIONS SHALL BE PREPARED AND RETAINED AS A PART OF THE CESCP;
 - b. ALL INSPECTION REPORTS SHALL BE KEPT ON-SITE DURING THE LIFE OF THE PROJECT AND AVAILABLE FOR REVIEW UPON REQUEST OF THE ENGINEER.
- 9. BMP REMOVAL
 - a. BEFORE PROJECT CLOSEOUT, ALL SEDIMENT SHALL BE REMOVED FROM TEMPORARY AND PERMANENT DRAINAGE CONVEYANCES, DITCHES, CULVERTS, CHANNELS, TO MAINTAIN OPERATION;
 - b. SEDIMENT REMOVED SHALL BE PLACED AWAY FROM DRAINAGE CONVEYANCES AND DISPOSED OF OFF SITE.
 - c. ALL TEMPORARY BMPs SHALL BE REMOVED UPON PERMANENT STABILIZATION OR AS DIRECTED BY THE ENGINEER;
 - d. AREAS DISTURBED DURING REMOVAL OF TEMPORARY BMPs SHALL BE PERMANENTLY STABILIZED;
 - e. PERMANENT STABILIZATION SHALL OCCUR UPON INSTALLATION OF CONCRETE OR ASPHALT PAVEMENT.
- 10. EMERGENCY RESPONSE
 - a. THE CESCP SHALL CONTAIN INFORMATION ON HOW THE CONTRACTOR SHALL CONTROL AND RESPOND TO TURBID WATER DISCHARGES, SEDIMENT MOVEMENT, AND FUGITIVE DUST. AT A MINIMUM, THE CONTRACTOR'S EMPLOYEE RESPONSIBLE FOR, OR FIRST NOTICING, THE DISCHARGES SHALL TAKE APPROPRIATE IMMEDIATE ACTION TO PROTECT THE WORK AREA, PRIVATE PROPERTY, AND THE ENVIRONMENT (E.G., DIKING TO PREVENT POLLUTION OF STATE WATERS). APPROPRIATE ACTION INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
 - 1) HAZARD ASSESSMENT-ASSESS THE SOURCE, EXTENT, AND QUANTITY OF THE DISCHARGE.
 - 2) SECUREMENT AND PERSONAL PROTECTION- IF THE DISCHARGE CANNOT BE SAFELY AND EFFECTIVELY CONTROLLED, THEN IMMEDIATELY NOTIFY THE CESCL AND THE ENGINEER. IF THE DISCHARGE CAN BE SAFELY AND EFFECTIVELY CONTROLLED,

- PROCEED IMMEDIATELY WITH ACTION TO PROTECT THE WORK AREA, PRIVATE PROPERTY, AND THE ENVIRONMENT.
- 3) CONTAINMENT AND ELIMINATION OF SOURCE- CONTAIN THE DISCHARGE WITH SILT FENCE, PIPES, SAND BAGS OR A SOIL BERM DOWN SLOPE FROM THE AFFECTED AREA. ELIMINATE THE SOURCE OF THE DISCHARGE BY PUMPING TURBID WATER TO A CONTROLLED AREA, BUILDING BERMS, PIPING CLEAN WATER AWAY FROM THE AREA OR OTHER MEANS NECESSARY.
- 4) CLEANUP-WHEN CONTAINMENT IS COMPLETE, CHEMICALLY TREAT TURBID WATER, REMOVE SEDIMENT AND STABILIZE ON SITE, OR OTHER METHODS TO PREVENT FUTURE DISCHARGE.
- 5) NOTIFICATION-REPORT ALL DISCHARGES IMMEDIATELY TO THE ENGINEER.
- 11. CONSTRUCTION DEWATERING
 - a. STORM WATER AND CONSTRUCTION DEWATERING OPERATIONS SHALL NOT DISCHARGE TO THE STORM DRAIN SYSTEM (SDS) AT ANY TIME, REGARDLESS OF THE POLLUTANT CONCENTRATION. BEFORE DISCHARGE TO APPROVED LOCATIONS, WATER SHALL BE MEASURED AND TESTED TO MEET THE REQUIREMENT OF THE RECEIVING LOCATION.

3.03 CONSTRUCTION REQUIREMENTS

- A. SAW CUTTING
 1. SAW CUT SLURRY AND CUTTINGS SHALL BE VACUUMED DURING CUTTING OPERATIONS;
 2. SAW CUT SLURRY AND CUTTINGS SHALL NOT REMAIN ON PERMANENT CONCRETE OR ASPHALT PAVEMENT OVERNIGHT;
 3. SAW CUT SLURRY AND CUTTINGS SHALL NOT DRAIN TO SDS, IWS, OR ANY OTHER NATURAL OR CONSTRUCTED DRAINAGE CONVEYANCE;
 4. COLLECTED SLURRY AND CUTTINGS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF SITE IN A MANNER THAT DOES NOT VIOLATE GROUNDWATER OR SURFACE WATER QUALITY STANDARDS.
- B. SOIL AND CONSTRUCTION DEBRIS STOCKPILES
 1. SOILS AND CONSTRUCTION DEBRIS, INCLUDING BROKEN CONCRETE AND ASPHALT PAVING, SHALL BE STOCKPILED WITHIN THE WORK SITE OR OFF SITE;
 2. STOCKPILES SHALL BE COVERED WITH PLASTIC AND SECURED FROM BLOWING WIND;
 3. PLASTIC SHALL BE A MINIMUM THICKNESS OF 6 MIL;
 4. MATERIALS TO BE STOCKPILED ON PAVEMENT SHALL BE PLACED ON PLASTIC AND CONTAINED WITHIN A BERMED AREA;
 5. CLEAN STORM WATER RUNOFF FROM THE PLASTIC COVERING SHALL BE DIRECTED AWAY FROM BARE SOIL USING PIPES, SANDBAGS, OR OTHER TEMPORARY DIVERSION DEVICES. CLEAN STORM WATER RUNOFF SHALL NOT BE DISCHARGED TO THE STORM DRAINAGE SYSTEM OR THE DUWAMISH WEST WATERWAY.
- C. CONSTRUCTION ROADS, ENTRANCES, AND EXITS
 1. BEFORE LEAVING PROJECT SITE, ALL TRUCKS AND EQUIPMENT SHALL BE INSPECTED FOR MUD AND DEBRIS;
 2. ALL MUD AND DEBRIS SHALL BE REMOVED;
 3. IF MUD OR DEBRIS IS TRACKED FROM THE SITE IT SHALL BE CLEANED UP IMMEDIATELY;
 4. MUD AND DEBRIS SHALL BE REMOVED FROM PAVEMENT BY SWEEPING AND SHOVELING AND TRANSPORTED TO A CONTROLLED SEDIMENT STORAGE OR DISPOSAL AREA;
 5. IF THE MUD AND DEBRIS ARE CONTAMINATED BY FUELS, GREASE, METALS OR OTHER POLLUTANTS, THEY SHALL BE DISPOSED OF IN ACCORDANCE WITH HAZARDOUS MATERIALS REQUIREMENTS;
 6. USE OF WATER TO WASH CONCRETE OR ASPHALT PAVEMENT SHALL BE ALLOWED ONLY AFTER SEDIMENT HAS BEEN REMOVED BY SWEEPING AND SHOVELING;
 7. WATER USED TO WASH PAVEMENT SHALL NOT DRAIN INTO THE SDS, IWS, OR ANY OTHER NATURAL OR CONSTRUCTED STORM WATER CONVEYANCE.
- D. STORM DRAIN INLET PROTECTION
 1. ALL CATCH BASINS WITHIN THE PROJECT LIMITS SHALL BE PROTECTED.
- E. CONCRETE TRUCK AND EQUIPMENT WASHING
 1. CONCRETE TRUCK SHUTS SHALL BE WASHED OUT OFF-SITE, UNLESS A LOCATION ON-SITE IS APPROVED BY THE ENGINEER.
 2. CONCRETE REMAINING IN THE TRUCK AND NOT USED SHALL BE RETURNED TO THE ORIGINATING BATCH PLANT FOR RECYCLING;
 3. CONCRETE PUMPS SHALL BE WASHED OUT OFF-SITE, UNLESS A LOCATION ON-SITE IS APPROVED BY THE ENGINEER.
 4. CONCRETE REMAINING IN THE PUMP AND NOT USED SHALL BE BLOWN BACK INTO THE CONCRETE TRUCK AND RETURNED TO THE BATCH PLANT FOR RECYCLING;
 5. HAND TOOLS INCLUDING, BUT NOT LIMITED TO, SCREEDS, SHOVELS, RAKES, FLOATS, AND TROWELS SHALL BE WASHED OFF-SITE, UNLESS A LOCATION ON-SITE IS APPROVED BY THE ENGINEER.

MARK	REVISION	DESCRIPTION	BY	APP.	DATE



33301 9th Avenue South, Suite 300
Federal Way, Washington 98003-2600
(206) 431-2300 Fax: (206) 431-2250



DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB

**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

UPLAND CIVIL SPECIFICATIONS - SHEET 2

DRAWING NO. **G-4**
PROJECT NO. **FAWAT-12-145**
DATE: **4/11/16**
SHEET NO. **4 OF 48**

BID DOCUMENTS

SECTION 32 11 24 - BASE COURSE

PART 1 - GENERAL

1.01 SUMMARY
A. EXTENT OF WORK: THE EXTENT OF "BASE COURSE" WORK IS INDICATED ON THE PLANS. THE WORK INCLUDES THE REQUIREMENTS FOR PRODUCING, TRANSPORTING, PLACING, SHAPING, AND COMPACTING BASE COURSE IN CONFORMANCE WITH THESE SPECIFICATIONS AND THE DIMENSIONS AND SECTIONS INDICATED ON THE PLANS OR WITHIN THE LINES AND GRADES ESTABLISHED BY THE ENGINEER.

1.02 REFERENCES
A. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, 2014 EDITION.

1.03 QUALITY ASSURANCE
A. INSPECTION AND TESTING: SAMPLING AND TESTING OF MATERIALS AND INSTALLATIONS SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE PORT. TESTS, TESTING METHODS, AND RESULTS SHALL BE AS SPECIFIED IN THE PERTINENT SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS.

1.04 SUBMITTALS
A. SIEVE ANALYSES FOR ALL MATERIALS SPECIFIED IN ACCORDANCE WITH SECTION 9-03.9(3) OF WSDOT STANDARD SPECIFICATIONS.
B. CERTIFIED TEST RESULTS OF ALL TESTING REQUIRED UNDER ARTICLE 3.03, FIELD QUALITY CONTROL.

PART 2 - PRODUCTS

2.01 AGGREGATES
A. BASE COURSE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 9-03.9(3) OF WSDOT STANDARD SPECIFICATIONS.

PART 3 - EXECUTION

3.01 EQUIPMENT
A. ALL EQUIPMENT NECESSARY FOR THE SATISFACTORY INSTALLATION OF BASE COURSE SHALL MEET THE REQUIREMENTS OF SECTION 4-04.3(1) OF WSDOT STANDARD SPECIFICATIONS. THE ABOVE SPECIFICATION IS AMENDED TO PROVIDE FOR THE FOLLOWING:
B. EQUIPMENT GRADING MACHINES OR TRIMMERS WITH A SPIRIT LEVEL OR OTHER TYPE SLOPE INDICATOR THAT WILL CONTINUOUSLY INDICATE THE AVERAGE, TRANSVERSE SLOPE OF THE SCREED. BUBBLE OR INDICATOR MOVEMENT SHOULD BE NO LESS THAN 1/8 INCH FOR EACH 0.1% CHANGE IN TRANSVERSE SLOPE.

3.02 PLACEMENT OF BASE COURSE AGGREGATE
A. GENERAL: FOLLOW APPLICABLE REQUIREMENTS OF SECTION 4-04 OF WSDOT STANDARD SPECIFICATIONS.
B. SUBGRADE: PREPARE SUBGRADE AS REQUIRED IN SECTION 4-04.3(2) OF WSDOT STANDARD SPECIFICATIONS, AND OBTAIN APPROVAL OF THE ENGINEER BEFORE PLACING BASE COURSE MATERIAL.
C. MIXING: FOLLOW REQUIREMENTS OF SECTION 4-04.3(3) OF WSDOT STANDARD SPECIFICATIONS.

3.03 FIELD QUALITY CONTROL
A. CONTRACTOR SHALL PERFORM IN-PLACE COMPACTION & MOISTURE CONTENT TESTING IN ACCORDANCE WITH SECTION 4-04.3(5) AND SECTION 2-03.3(14)D OF THE WSDOT STANDARD SPECIFICATIONS.

SECTION 32 12 17 - HOT MIX ASPHALT PAVEMENT

PART 1 - GENERAL

1.01 REFERENCES
A. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS, 2014 EDITION.
B. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (ASSHTO)

1.02 SUBMITTALS
A. SUBMIT THE APPLICABLE DOCUMENTATION FOR REVIEW AND APPROVAL DEMONSTRATING COMPLIANCE WITH PROJECT REQUIREMENTS. SUBMIT MANUFACTURER'S CERTIFICATE OF COMPLIANCE AS APPLICABLE.
1. HMA AGGREGATE: GRADATION, SOURCE TEST RESULTS AS DEFINED IN SECTION 9_03.8 OF WSDOT STANDARD SPECIFICATIONS.

2. ASPHALT BINDER FOR HMA: TYPE AND PERFORMANCE GRADE FOR BINDER MATERIAL.
3. TACK COAT: TYPE AND GRADE OF ASPHALT.

4. HMA MIX DESIGN/JOB-MIX FORMULA (JMF): SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS SECTION 5-04.3(7)A1. THE MIX DESIGN AGGREGATE STRUCTURE AND ASPHALT BINDER CONTENT SHALL BE DETERMINED IN ACCORDANCE WITH WSDOT STANDARD OPERATING PROCEDURE 732 AND MEET THE REQUIREMENTS OF SECTIONS 9-03.8(2) AND 9-03.8(6). SUBMIT CERTIFICATES OF SPECIFICATION COMPLIANCE FOR MATERIALS TO BE USED. SUBMIT CERTIFICATION AND SUPPORTING DOCUMENTATION THAT INDICATES MIX DESIGN HAS BEEN PREVIOUSLY APPROVED BY WSDOT FOR A ROADWAY PROJECT WITHIN THE PAST 12 MONTHS OF WHEN PAVING OPERATIONS WILL COMMENCE. CONTRACTOR SHALL DETERMINE ANTI-STRIP REQUIREMENTS FOR THE HMA, IF ANY, IN ACCORDANCE WITH WSDOT TEST METHOD T718. RECYCLED MATERIALS ARE NOT ALLOWED FOR HMA ON THIS PROJECT.

FORMULAS SHALL INDICATE PHYSICAL PROPERTIES OF THE MIXES AS SHOWN BY TESTS MADE BY A COMMERCIAL LABORATORY USING MATERIALS IDENTICAL TO THOSE TO BE PROVIDED ON THIS PROJECT. JMF FOR EACH MIXTURE SHALL BE IN EFFECT UNTIL MODIFIED IN WRITING BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. PROVIDE A NEW JMF FOR EACH SOURCE CHANGE. SUBMITTAL SHALL INCLUDE ALL TEST DATA DEMONSTRATING THE DESIGN MEETS THE REQUIREMENTS OF SECTIONS 9-03.8(2) AND 9-03.8(6) OF WSDOT STANDARD SPECIFICATIONS. JMF SUBMITTAL SHALL INCLUDE THE FOLLOWING.

- a. SOURCE AND PROPORTIONS, PERCENT BY WEIGHT, OF EACH INGREDIENT OF THE MIXTURE
b. CORRECT GRADATION, AND THE PERCENTAGES PASSING EACH SIZE SIEVE LISTED IN SECTION 9-03.8(6) OF WSDOT STANDARD SPECIFICATIONS
c. EFFECTIVE ASPHALT CONTENT AS PERCENT BY WEIGHT OF TOTAL MIX
d. PERCENT AIR VOIDS WITH TARGET AT 4.0% (SHALL BE BETWEEN 3.5 - 5.0 % IN LAB COMPACTED MIXTURES)
e. ASPHALT PERFORMANCE GRADE

1.03 QUALITY ASSURANCE
A. HMA TEST REQUIREMENTS SHALL COMPLY WITH THE WSDOT STANDARD SPECIFICATIONS SECTION 9-03.8(2). TEST METHODS FOR AGGREGATES SHALL COMPLY WITH THE WSDOT STANDARD SPECIFICATIONS SECTION 9-03.20.

B. INSPECTION AND TESTING: SAMPLING AND TESTING OF MATERIALS AND INSTALLATIONS SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE PORT. TESTS, TESTING METHODS, AND RESULTS SHALL BE AS SPECIFIED IN THE PERTINENT SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS, AND THIS SPECIFICATION.

C. MATERIALS AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH AND SHALL MEET THE REQUIREMENTS OF THE PERTINENT SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS, INCLUDING SECTION 5-04.

D. LEGALLY DISPOSE OF ALL WASTE MATERIAL PRODUCED AS A RESULT OF THE CONTRACTOR'S OPERATIONS. THE COST OF DISPOSAL FOR ALL WASTE WILL BE CONSIDERED INCIDENTAL TO THE COST OF CONSTRUCTION AND NO ADDITIONAL PAYMENT WILL BE MADE FOR PERFORMING THIS WORK.

E. HMA COURSES SHALL NOT BE CONSTRUCTED WHEN THE UNDERLYING COURSE CONTAINS FREE SURFACE WATER. UNLESS OTHERWISE DIRECTED, ASPHALT COURSES SHALL NOT BE CONSTRUCTED WHEN THE AVERAGE SURFACE TEMPERATURES ARE LESS THAN THAT SPECIFIED IN THE TABLE INCLUDED IN SECTION 5-04.3(16) IN THE WSDOT STANDARD SPECIFICATIONS, OR AS RECOMMENDED BY THE BINDER MANUFACTURER.

F. TRUCK TICKETS FOR HMA SHALL CLEARLY STATE MIX NUMBER OR OTHER INFORMATION THAT CORRESPONDS DIRECTLY WITH SUBMITTAL DOCUMENTATION. IF TRUCK TICKET CANNOT BE RELATED BACK TO SUBMITTAL INFORMATION, ASPHALT WILL NOT BE ALLOWED TO BE PLACED AND CONTRACTOR WILL RETURN MATERIAL AT HIS OWN EXPENSE - NO EXCEPTIONS.

1.04 ENVIRONMENTAL CONDITIONS
A. WEATHER LIMITATIONS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(16). PLACE HMA ONLY DURING DRY WEATHER AND ON DRY SURFACES - NO EXCEPTION. HMA PLACED ON WET SURFACES AND/OR DURING RAINFALL ARE SUBJECT TO REMOVAL AND REPLACEMENT AT CONTRACTOR'S EXPENSE.

1.05 CONSTRUCTION EQUIPMENT
A. CALIBRATED EQUIPMENT, SUCH AS SCALES, BATCHING EQUIPMENT, SPREADERS AND SIMILAR EQUIPMENT, SHALL HAVE BEEN RECALIBRATED BY A CALIBRATION LABORATORY WITHIN 12 MONTHS OF COMMENCING WORK. EQUIPMENT SHALL ALSO BE IN ACCORDANCE WITH WSDOT SECTION 1-05.9.

1. MIXING PLANT
a. MIXING PLANT SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(1).

2. PAVING EQUIPMENT
1. HAULING EQUIPMENT
a. HAULING EQUIPMENT SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(2).
2. HOT MIX ASPHALT (HMA) PAVERS
a. PAVERS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(3).

3. ROLLERS
a. ROLLERS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(4).

PART 2 - PRODUCTS

2.01 GENERAL
A. MATERIALS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.2.

2.02 TACK COAT
A. TACK COAT SHALL BE EMULSIFIED ASPHALT, CSS-1, IN ACCORDANCE WITH WSDOT SECTION 9-02.1(6).

2.03 AGGREGATES
A. GENERAL REQUIREMENTS
1. GENERAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(1). AGGREGATES SHALL BE HMA CLASS 1/2 INCH.

B. TEST REQUIREMENTS
1. AGGREGATES FOR HMA SHALL BE IN ACCORDANCE WITH TEST REQUIREMENTS IN WSDOT SECTION 9-03.8(2).

C. GRADING
1. GRADING REQUIREMENTS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(3).

- D. BLENDING SAND
1. BLENDING SAND SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(4).
E. MINERAL FILLER
1. MINERAL FILLER, WHEN USED, SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(5).
F. HMA PROPORTIONS OF MINERALS
1. PROPORTIONS OF MATERIALS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(6).
G. HMA TOLERANCES AND ADJUSTMENTS
1. JOB MIX TOLERANCES AND ADJUSTMENTS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(7).

2.04 ASPHALT CEMENT BINDER
A. ASPHALT BINDER SHALL CONFORM TO WSDOT SECTIONS 9-2.1(4) AND AASHTO MP 1A PERFORMANCE GRADE (PG) 64-22. TEST DATA INDICATING GRADE CERTIFICATION SHALL BE PROVIDED BY THE SUPPLIER AT THE TIME OF DELIVERY OF EACH LOAD TO THE MIX PLANT. COPIES OF THESE CERTIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER. THE SUPPLIER IS DEFINED AS THE LAST SOURCE OF ANY MODIFICATION TO THE BINDER.

2.05 HMA PAVEMENT CLASS
A. HMA PAVEMENT SHALL MEET ALL THE APPLICABLE WSDOT REQUIREMENTS FOR HMA CLASS 1/2 INCH. THE HMA SHALL BE DESIGNED FOR GREATER THAN 30M ESALS, MIN 100 GYRATIONS, IN ACCORDANCE WITH SECTION 9-03.8(2).

2.06 MIX DESIGN
A. THE MIX DESIGN WILL BE THE INITIAL JMF. THE ASPHALT MIX SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(7)A.
1. ADJUSTMENTS TO JMF

a. THE JMF FOR EACH MIXTURE SHALL BE IN EFFECT UNTIL A NEW FORMULA IS APPROVED IN WRITING BY THE ENGINEER. SHOULD A CHANGE IN SOURCES OF ANY MATERIALS BE MADE, A NEW MIX DESIGN SHALL BE PERFORMED AND A NEW JMF APPROVED BEFORE THE NEW MATERIAL IS USED. THE CONTRACTOR WILL BE ALLOWED TO ADJUST THE JMF WITHIN THE LIMITS SPECIFIED BELOW TO OPTIMIZE MIX VOLUMETRIC PROPERTIES. ADJUSTMENTS TO THE JMF SHALL BE LIMITED TO PLUS OR MINUS 3 PERCENT ON THE 1/2 INCH, NO. 4, AND NO. 8 SIEVES; PLUS OR MINUS 1.0 PERCENT ON THE NO. 200 SIEVE; AND PLUS OR MINUS 0.40 PERCENT BINDER CONTENT. IF ADJUSTMENTS ARE NEEDED THAT EXCEED THESE LIMITS, A NEW MIX DESIGN SHALL BE DEVELOPED.

2.07 PROPORTIONS OF HMA MATERIALS
A. THE MATERIALS OF WHICH HMA PAVEMENT IS COMPOSED SHALL BE OF SUCH SIZES, GRADINGS, AND QUANTITIES THAT, WHEN PROPORTIONED AND MIXED TOGETHER, THEY WILL PRODUCE A WELL-GRADED MIXTURE WITHIN THE REQUIREMENTS LISTED IN THE WSDOT STANDARD SPECIFICATIONS

B. THE ACTUAL PROPORTIONS OF THE SEVERAL COMPONENTS TO BE USED IN THE PRODUCTION OF THE ASPHALT CONCRETE MIXTURE SHALL BE WITHIN THE WSDOT SPECIFIED LIMITS TO PROVIDE A PAVEMENT HAVING SURFACE TEXTURE, AIR VOIDS, VOIDS IN MINERAL AGGREGATE (VMA), AND VOIDS FILLED WITH ASPHALT (VFA) VALUES SATISFACTORY TO THE ENGINEER. THE PROPORTIONS SO FIXED SHALL BE CHANGED ONLY BY HIS ORDER.

C. SELECTION OF ASPHALT CONTENT SHALL ACHIEVE AN AIR VOID CONTENT BETWEEN 3.5 TO 5 PERCENT IN LABORATORY COMPACTED MIXTURES (TARGET IS 4%), WHICH IS PURPOSELY A MORE RESTRICTIVE RANGE THAN ALLOWED BY WSDOT. ASPHALT CONTENT SHOULD NOT BE ARBITRARILY INCREASED IN CONSTRUCTION TO FACILITATE COMPACTION, MINIMIZE SEGREGATION, OR FOR ANY OTHER REASON. DO NOT BEGIN PRODUCTION UNTIL THE ENGINEER HAS APPROVED MIX DESIGN.

2.08 JOINT SEALER
A. JOINT SEALER SHALL BE IN ACCORDANCE WITH SECTION 9-04.2(1).

PART 3 - EXECUTION

3.01 GENERAL
A. HMA CONSTRUCTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3.

3.02 SURFACE PREPARATION
A. GENERAL: SURFACE PREPARATION SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS SECTION 5-04.3(5)A.
B. SOIL RESIDUAL HERBICIDE: APPLY SOIL RESIDUAL HERBICIDE IN UPLAND AREAS TO BE PAVED IN ACCORDANCE WITH WSDOT SECTION 5-04.3(5)D.

C. CLEAN PAVEMENT SURFACES IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS SECTION 5-04.3(5)A PRIOR TO APPLYING TACK COAT, PLACING HMA OVERLAY, ETC.
D. PRIOR TO PLACING HMA OVERLAY, APPLY TACK COAT OVER ASPHALT PAVEMENT AND/OR STRUCTURE SURFACES AS DIRECTED BY THE ENGINEER. THE APPLICATION RATE FOR TACK COAT WILL BE DETERMINED BY THE ENGINEER BUT SHALL NOT EXCEED 0.15 GALLON PER SQUARE YARD. AREAS TO RECEIVE TACK COAT MUST BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION.

E. APPLY JOINT SEALER TO THE EDGES OF NEW PAVING JOINTS, UTILITY STRUCTURES, ETC., AS DIRECTED BY THE ENGINEER.
F. PAVEMENT SAW CUTTING SHALL BE DONE AS INDICATED ON THE PLANS AND AS DIRECTED BY THE ENGINEER.

3.03 PLACING HMA PAVEMENT
A. SPREADING AND FINISHING:
1. SPREADING AND FINISHING OF HMA SHALL BE IN ACCORDANCE WITH SECTION 5-04.3(9) OF WSDOT STANDARD SPECIFICATIONS.
B. COMPACTION OF MIXTURE:
1. COMPACTION SHALL BE IN ACCORDANCE WITH SECTION 5-04.3(10) OF WSDOT STANDARD SPECIFICATIONS.

C. JOINTS:
1. JOINTS SHALL BE IN ACCORDANCE WITH SECTION 5-04.3(12) OF WSDOT STANDARD SPECIFICATIONS. VERTICAL CONTACT SURFACES OF PREVIOUSLY CONSTRUCTED SECTIONS OR EXISTING PAVEMENT SHALL BE PAINTED WITH A TACK COAT JUST BEFORE PLACING FRESH HMA.

D. LINE, GRADE, AND THICKNESS:
1. IN GENERAL, THE SLOPE OF THE FINISHED GRADE SHALL MATCH EXISTING CONDITIONS WHERE HMA OVERLAY IS TO BE PLACED, WITH THE EXCEPTION OF TRANSITION AREAS WHERE RAILROAD TRACK CROSSINGS ARE LOCATED AND AT THE NORTH AND SOUTH ENDS OF CONSTRUCTION. TRANSITION AREAS SHALL BE GRADUALLY SLOPED TO FINISH GRADE AS SHOWN ON DRAWINGS SUCH THAT OVERLAY MATCHES AND IS FLUSH WITH EXISTING GRADE AT PAVING BOUNDARIES.

E. HMA:
1. MIX, HANDLE, BATCH, HAUL, PLACE, ROLL, AND COMPACT HMA PAVEMENT IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS. PLACE THE MATERIAL TO THE DIMENSIONS INDICATED ON THE PLANS AND AS DIRECTED BY THE ENGINEER. MINIMUM COMPACTED LAYER THICKNESS SHALL BE 1.80 INCHES. THE MAXIMUM COMPACTED LAYER THICKNESS WHEN PLACED AS THE FINAL WEARING COURSE SHALL BE 3.6 INCHES. THE MAXIMUM COMPACTED LAYER THICKNESS WHEN PLACED AS ONE OF THE BASE LAYERS SHALL BE 4.2 INCHES. WHERE 6 INCHES TOTAL THICKNESS IS REQUIRED, PLACE (2) TWO 3 INCH COMPACTED LAYERS.

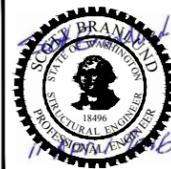
3.04 FIELD QUALITY CONTROL
A. CONTRACTOR SAMPLING OF PAVEMENT AND MIXTURE: TAKE FIELD SAMPLES FOR THICKNESS AND DENSITY OF THE COMPLETED PAVEMENTS. FURNISH TOOLS, LABOR, AND MATERIAL FOR SAMPLES AND SATISFACTORY REPLACEMENT OF PAVEMENT. TAKE SAMPLES AND TESTS AT NOT LESS THAN FREQUENCY SPECIFIED HEREINAFTER AND AT THE BEGINNING OF PLANT OPERATIONS, FOR EACH DAY'S WORK AS A MINIMUM, EACH CHANGE IN THE MIX OR EQUIPMENT, AND AS DIRECTED BY THE ENGINEER.

B. TESTING: PERFORM THE FOLLOWING TESTS:
1. COMPACTION/DENSITY: WSDOT SECTIONS 5-04.3(8)A AND 5-04.3(10)A AND B.
2. THICKNESS: DETERMINE THICKNESS OF CORE SAMPLES TAKEN FOR THE FIELD DENSITY TEST. SAMPLES SHALL BE TAKEN A MINIMUM OF ONE EVERY 500 SQUARE FEET OF PAVEMENT AREA OR AS DIRECTED BY ENGINEER. THE MAXIMUM ALLOWABLE DEFICIENCY AT ANY POINT SHALL NOT BE MORE THAN 1/4 INCH DIFFERENT THAN THE THICKNESS FOR THE INDICATED COURSE. AVERAGE THICKNESS OF COURSE OR OF COMBINED COURSES SHALL BE NOT LESS THAN THE INDICATED THICKNESS. WHERE A DEFICIENCY EXCEEDS THE SPECIFIED TOLERANCES, CORRECT EACH SUCH REPRESENTATIVE AREA OR AREAS BY REMOVING AND REPLACING THE DEFICIENT PAVEMENT. SKIN PATCHING AS A METHOD OF CORRECTING THIN/LOW AREAS IS PROHIBITED. ADDITIONAL SAMPLES SHALL BE TAKEN TO ESTABLISH THE EXTENT OF PAVEMENT HAVING DEFICIENT THICKNESS TO THE SATISFACTION OF THE ENGINEER, AND ADDITIONAL SAMPLES SHALL BE DONE AT NO ADDITIONAL COST TO THE PORT.

3. SMOOTHNESS: SURFACE SMOOTHNESS SHALL BE IN ACCORDANCE WITH SECTION 5-04.3(13) OF WSDOT STANDARD SPECIFICATIONS.
4. FINISH GRADES: FINISH GRADES OF EACH COURSE PLACED SHALL NOT VARY FROM THE PREVIOUS EXISTING GRADE PLUS HMA OVERLAY THICKNESS BY MORE THAN 1/4 INCH. FINISHED SURFACE SHALL BE TESTED TO ENSURE PROPER SURFACE RUNOFF WILL OCCUR WITHOUT PONDING TO THE SATISFACTION OF THE ENGINEER. WHERE UNACCEPTABLE LOW SPOTS ARE IDENTIFIED, CONTRACTOR SHALL REMOVE THE ASPHALT SECTION IN LOW AREA AND REPLACE WITH ADJUSTED GRADES TO ENCOURAGE POSITIVE DRAINAGE. PONDING AREAS CAUSED BY DEFICIENT PAVEMENT THICKNESS SHALL BE RECONSTRUCTED AT NO ADDITIONAL COST.

5. FINISH SURFACE TEXTURE OF WEARING COURSE: VISUALLY CHECK FINAL SURFACE TEXTURE FOR UNIFORMITY AND REASONABLE COMPACTNESS AND TIGHTNESS. FINAL WEARING COURSE WITH A SURFACE TEXTURE HAVING UNDESIRABLE IRREGULARITIES, SUCH AS SEGREGATION, CAVITIES, PULLS OR STREAKS, INDENTATIONS, RIPPLES, OR LACK OF UNIFORMITY SHALL BE REMOVED AND REPLACED.
C. DO NOT ALLOW VEHICULAR TRAFFIC OF ANY TYPE ON PAVEMENT FOR A MINIMUM OF 48 HOURS OR UNTIL SURFACE TEMPERATURE HAS COOLED TO AT LEAST 120 DEGREES F, WHICHEVER IS LONGEST. MEASURE SURFACE TEMPERATURE BY APPROVED THERMOMETERS OR OTHER SATISFACTORY METHODS.

Table with 5 columns: MARK, REVISION, DESCRIPTION, BY, APP., DATE



DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB

PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II
UPLAND CIVIL SPECIFICATIONS - SHEET 3

BID DOCUMENTS

DRAWING NO. G-5
PROJECT NO. FAWAT-12-145
DATE: 4/11/16
SHEET NO. 5 OF 48

SECTION 33 10 00 - WATER

- PART 1 - GENERAL
- 1.01 DESCRIPTION OF WORK
- A. THE EXTENT OF WORK IS INDICATED ON THE DRAWINGS. WORK INCLUDES THE REQUIREMENTS FOR PROVIDING THE UPLANDS PORTION OF THE WATER SYSTEM, INCLUDING TRENCH EXCAVATION, INSTALLATION OF NEW PIPING, PLACEMENT AND COMPACTION OF BEDDING MATERIAL, BACKFILL, INSTALLATION OF VALVES, BOLLARDS TO PROTECT EXISTING HYDRANTS, ETC., ALL IN CONFORMANCE WITH THESE SPECIFICATIONS AND THE DIMENSIONS AND SECTIONS INDICATED ON THE DRAWINGS OR WITHIN THE LINES AND GRADES ESTABLISHED BY THE ENGINEER.
- 1.02 QUALITY ASSURANCE
- A. QUALIFICATION OF WORKERS: EMPLOY THE SERVICES OF A QUALIFIED UTILITY CONTRACTOR, WHO WILL BE THOROUGHLY FAMILIAR WITH THE TYPE OF MATERIALS BEING INSTALLED AND THE BEST METHODS FOR THEIR INSTALLATION, AND WHO SHALL DIRECT ALL WORK PERFORMED UNDER THIS SECTION.
 - B. CODES AND STANDARDS: COMPLY WITH THE APPLICABLE PROVISIONS OF ALL PERTINENT CODES AND REGULATIONS. REFERENCES MADE HEREIN FOR MANUFACTURED MATERIALS, SUCH AS PIPE, FITTINGS, VALVES; REFER TO DESIGNATIONS FOR AMERICAN WATER WORKS ASSOCIATION (AWWA), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) OR TO STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, M41-10, 2014 EDITION, BY WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT STANDARD SPECIFICATIONS).
 - C. LOCAL AUTHORITY - WATER PURVEYOR: THE CONTRACTOR SHALL COORDINATE WITH AND COMPLY WITH THE APPLICABLE PROVISIONS REQUIRED BY THE WATER PURVEYOR ASSOCIATED WITH TIE-IN TO THE EXISTING WATER MAIN, NOTIFICATIONS, TESTING, FLUSHING, DISINFECTION, INSTALLATION, INSPECTION AND MATERIALS USED.
 - D. ALL WATER SYSTEM COMPONENTS UNLESS NOTED OTHERWISE SHALL BE RATED FOR A WORKING PRESSURE OF AT LEAST 125 PSI AND A TESTING PRESSURE OF 225 PSI, AND BE APPROVED FOR POTABLE USE BY NATIONAL SANITATION FOUNDATION (NSF).
- 1.03 SUBMITTALS
- A. PIPING, FITTINGS, VALVES, ACCESSORIES
 - 1. MANUFACTURER'S CATALOG CUTS AND SHOP DRAWINGS TO DEMONSTRATE THAT ALL ITEMS CONFORM TO THE SPECIFICATIONS FOR THE FOLLOWING:
 - a) PIPE, FITTINGS AND ACCESSORIES
 - b) VALVES AND VALVE BOXES
 - c) WATER METER - AS REQUIRED BY WATER PURVEYOR
 - B. TESTING AND INSPECTION
 - 1. SUBMIT TESTING AND INSPECTION PROCEDURES, INCLUDING INSPECTION REQUIREMENTS AND TESTING REQUIREMENTS TO BE PERFORMED. PROCEDURES SHALL INCLUDE PRESSURE TESTING, FLUSHING, AND DISINFECTION (CHLORINATION AND DECHLORINATION).
- 1.04 PRODUCT HANDLING
- A. HANDLE PIPE TO PREVENT DAMAGE TO THE PIPE, PIPE LINING, OR COATING. DAMAGE TO THE PIPE, PIPE LINING, OR COATING, IF ANY, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER OR REPLACED AT THE CONTRACTOR'S EXPENSE.
 - B. AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, CLOSE THE OPEN ENDS OF THE PIPE WITH A WATERTIGHT PLUG OR BY OTHER MEANS APPROVED BY THE ENGINEER TO ENSURE ABSOLUTE CLEANLINESS INSIDE THE PIPE.
- PART 2 - PRODUCTS
- 2.01 PIPE, FITTINGS, AND APPURTENANCES
- A. GENERAL: MATERIALS SHALL BE IN ACCORDANCE WITH THE APPLICABLE REFERENCES WITHIN WSDOT STANDARD SPECIFICATIONS, SECTION 7-09.2.
 - B. BURIED UPLAND DUCTILE IRON PIPE & FITTINGS
 - 1. DUCTILE IRON PIPE (DIP) AND FITTINGS SHALL BE CLASS 52. PIPE SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS SECTION 9-30.1(1). ALL PIPE SHALL BE NSF APPROVED FOR POTABLE USE.
 - 2. PIPE SHALL HAVE AN ASPHALTIC EXTERIOR COATING AND A CEMENT MORTAR LINING IN ACCORDANCE WITH ANSI/AWWA C104. DUCTILE IRON PIPE SHALL BE ENCASED WITH POLYETHYLENE (PE) ENCASEMENT (POLY-WRAP) IN ACCORDANCE WITH AWWA C105, TUBE TYPE WITH 2-INCH WIDE ADHESIVE TAPE.
 - 3. DUCTILE IRON FITTINGS SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS, SECTION 9-30.2(1). ALL FITTINGS SHALL BE NSF APPROVED FOR POTABLE USE.
 - C. TYPE K COPPER PIPE FOR BUILDING SERVICE LATERAL PIPING
 - 1. COPPER PIPE SHALL BE ANNEALED, SEAMLESS, AND CONFORM TO THE REQUIREMENTS OF ASTM B88, TYPE K RATING FOR BELOW GROUND PIPE, AND SHALL MEET WSDOT SECTION 9-30.6(3). FITTINGS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-30.6(4)A.
 - 2. FITTINGS SHALL BE WROUGHT COPPER, CONFORMING TO ASTM B 75 FOR MATERIALS AND ANSI B16.22 FOR DIMENSIONS, OR CAST BRONZE, CONFORMING WITH ASTM B 62 FOR MATERIALS AND ANSI B16.18 FOR DIMENSIONS. SOLDER JOINTS WITH 95/5 SOLDER AND NAPP GAS.

- 2.02 VALVES
- A. GATE VALVES 3 INCHES AND LARGER FOR DUCTILE IRON PIPING
 - 1. VALVE TYPE: RESILIENT SEAT VALVES, ANSI/AWWA C509, WSDOT STANDARD SPECIFICATIONS SECTION 9-30.3(1).
 - 2. RATING: 200 PSI
 - 3. OPENING: COUNTER CLOCKWISE
 - 4. BODY: DUCTILE IRON EPOXY COATED
 - 5. ENDS: FLANGED, MECHANICAL JOINT
 - 6. STEM: NON-RISING HIGH STRENGTH BRONZE
 - 7. STEM SEALS: O-RING
 - 8. BODY-BONNET CONNECTIONS: BOLTED WITH CORROSION-RESISTANT MATERIAL.
 - 9. MANUAL OPERATOR: 2-INCH SQUARE OPERATING NUT FOR BURIED VALVE BOX INSTALLATION WITH VALVE BOX
 - 10. MANUFACTURER: M&H VALVE MODEL C509/CS15, CLOW VALVE MODEL 2639/2640, AMERICAN FLOW CONTROL SERIES 2500, OR APPROVED EQUAL.
 - B. BALL VALVES:
 - 1. SIZE: TWO (2) INCHES AND SMALLER
 - 2. MATERIAL: BRONZE
 - 3. RATING: 600 PSI W.O.G.
 - 4. BALL AND STEM: 316 STAINLESS STEEL
 - 5. SEATS: REINFORCED TEFLON
 - 6. CONNECTION: THREADED
 - 7. MANUFACTURER: WATTS, SERIES FBV-3, OR APPROVED EQUAL.
- 2.03 VALVE BOX AND COVERS
- A. VALVE BOX SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-30.3(4). FRAME AND LID SHALL BE TESTED FOR ACCURACY OF FIT. CASTINGS AND EXTENSIONS SHALL BE HOT-DIPPED IN ASPHALTIC VARNISH ROYSTON ROSKOTE #612XM. MANUFACTURER: OLYMPIC FOUNDRY, OR APPROVED EQUAL.
- PART 3 - EXECUTION
- 3.01 TRENCHING, BEDDING AND BACKFILL
- A. ALL TRENCHING / EARTHWORK RELATED TO WATER PIPING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 31 00 00 - EARTHWORK AND NOTES ON THE DRAWINGS. PROVIDE SHORING AS NECESSARY TO SUPPORT EXISTING FEATURES TO REMAIN IN PLACE.
 - B. BEDDING MATERIAL FOR WATER PIPE SHALL BE WASHED SAND.
- a. IN THE EVENT THAT WATER IS ENCOUNTERED OR ACCUMULATES IN THE TRENCH, IT SHALL BE REMOVED DURING THE PIPE-LAYING OPERATION AND BE MAINTAINED IN A WATER-FREE CONDITION UNTIL THE ENDS OF THE PIPE ARE SEALED AND PROVISIONS ARE MADE TO PREVENT FLOATING OF THE PIPE. AT NO TIME ALLOW TRENCH WATER TO ENTER THE PIPE.
- 3.02 COORDINATION WITH OTHERS
- A. PRIOR TO STARTING WORK COORDINATE SHUT DOWNS, DEMOLITION, AND REOPENING WATER SUPPLY WITH THE PORT AND WATER PURVEYOR.
- 3.03 HANDLING THE PIPE
- A. DURING INSTALLATION, HANDLE THE PIPE AS SPECIFIED HEREIN. PIPE THAT HAS BECOME DAMAGED OR CONTAMINATED WITH DEBRIS SHALL BE REMOVED FROM THE TRENCH, CLEANED, AND REPAIRED AS REQUIRED AND RE-LAID.
- 3.04 LAYING PIPE
- A. GENERAL: CONSTRUCTION SHALL CONFORM TO MANUFACTURER INSTRUCTIONS AND REQUIREMENTS IN ACCORDANCE WITH WSDOT SECTION 7-09.3. DUCTILE IRON WATER LINES SHALL BE BURIED WITH A MINIMUM COVER OF 4 FEET. COPPER WATER LINES SHALL BE BURIED WITH A MINIMUM COVER OF 3 FEET.
 - B. RUBBER GASKET OF JOINT ON DUCTILE IRON PIPE:
 - 1. CLEANING AND ASSEMBLING JOINT: CLEAN THE INSIDE OF THE BELL TO REMOVE OIL, GRIT, TAR (OTHER THAN STANDARD COATING) AND OTHER FOREIGN MATERIAL FROM THE JOINT. FLEX THE CIRCULAR RUBBER GASKET INWARD AND INSERT IN THE GASKET SEAT PROVIDED IN THE SOCKET, THEN RELEASE WITH THE GASKET FITTING OVER THE BEAD IN THE GASKET SEAT. APPLY A THIN FILM OF GASKET LUBRICANT TO THE INSIDE SURFACE OF THE GASKET. GASKET LUBRICANT SHALL BE AS SUPPLIED BY THE PIPE MANUFACTURER AND APPROVED BY THE ENGINEER.
 - 2. CLEAN THE SPIGOT END OF THE PIPE AND ENTER INTO THE RUBBER GASKET IN THE SOCKET, USING CARE TO KEEP THE JOINT FROM CONTACTING THE GROUND. COMPLETE THE JOINT BY FORCING THE PLAIN END TO THE BOTTOM OF THE SOCKET USING A DEVICE APPROVED BY THE ENGINEER. PIPE THAT IS NOT FURNISHED WITH A DEPTH MARK SHALL BE MARKED BEFORE ASSEMBLY TO ENSURE THAT THE SPIGOT END IS INSERTED TO THE FULL DEPTH OF THE JOINT.

- 3.05 VALVE INSTALLATION
- A. GATE VALVES: INSPECT ALL GATE VALVES UPON DELIVERY IN THE FIELD TO ENSURE PROPER WORKING ORDER BEFORE INSTALLATION. SET AND JOINT TO THE PIPE IN THE MANNER SET FORTH IN THE AWWA STANDARDS FOR THE TYPE OF CONNECTION ENDS FURNISHED. INSPECT THE VALVES CAREFULLY FOR DAMAGE TO THE OUTER PROTECTIVE COATINGS. WHERE THE COATING HAS BEEN RUPTURED OR SCRAPED OFF, CLEAN THE DAMAGED AREA THOROUGHLY TO EXPOSE THE IRON BASE INSTALLATION, AND RECOAT THE CLEANED AREA WITH TWO OR MORE FIELD COATS OF QUIGLEY TRIPLE A-1 0, TRIPLE A-20, OR APPROVED EQUAL.
 - B. INSTALL VALVES IN THE POSITIONS SHOWN ON THE DRAWINGS AND PROVIDE WITH A VALVE BOX SO ARRANGED THAT NO LOAD OR SHOCK WILL BE TRANSMITTED TO THE VALVE. CENTER THE BOX OVER THE OPERATING NUT, AND SET THE BOX COVER FLUSH WITH THE FINISHED SURFACE.
 - C. AFTER INSTALLATION, ALL VALVES SHALL BE SUBJECTED TO THE FIELD TEST FOR PIPING. IF DEFECTS IN DESIGN, MATERIALS, OR WORKMANSHIP APPEAR DURING THESE TESTS, CORRECT SUCH DEFECTS WITH THE LEAST POSSIBLE DELAY AS DIRECTED BY THE ENGINEER.
 - D. VALVE BOXES SHALL BE POSITIONED DURING BACKFILL TO BE IN A PLUMB ALIGNMENT. VALVE BOX SHALL NOT REST DIRECTLY ON THE BODY OF THE VALVE, OR THE WATER MAIN. SET THE UPPER CASTING FLUSH WITH FINISH PAVEMENT AND ALIGN TO MATCH GRADE.
- 3.06 THRUST BLOCKS FOR BURIED DUCTILE IRON PIPE
- A. CONTRACTOR SHALL INSTALL CONCRETE THRUST BLOCKS AT ALL FITTINGS, SUCH AS BENDS, TEES, AND CAPS/PLUGS. THRUST BLOCKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NOTES ON THE DRAWINGS, WSDOT STANDARD PLAN B-90.40-00, AND WSDOT STANDARD SPECIFICATIONS SECTION 7-09.3(21). ASSUME SOIL IN EXCAVATION HAS AN ALLOWABLE BEARING PRESSURE OF 2,000 PSF FOR DESIGN OF THRUST BLOCKS UNLESS MATERIAL APPEARS SOFT, MUCKY, ETC.
- 3.07 COPPER PIPE
- A. FOLLOW INDUSTRY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION OF BURIED COPPER PIPING. FOLLOW MANUFACTURER'S INSTRUCTIONS ON HANDLING, TRANSPORTING, AND STORAGE.
- 3.08 FIELD TESTS
- A. TEST ALL PIPING AND APPURTENANCES IN ACCORDANCE WITH THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS SECTION 7-09.3 (23).
 - B. TEST COPPER PIPE IN ACCORDANCE WITH PIPE AND FITTING MANUFACTURER'S REQUIREMENTS.
- 3.09 FLUSHING & DISINFECTION OF POTABLE WATER LINES
- A. BEFORE BEING PLACED IN SERVICE, FLUSH AND DISINFECT ALL NEW POTABLE WATER LINES IN ACCORDANCE WITH THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS SECTION 7-09.3(24) AND 7-09.3(24)A. DISPOSE OF TEST WATER IN ACCORDANCE WITH APPLICABLE REGULATIONS.

SECTION 33 30 30 - SANITARY SEWER

- PART 1 - GENERAL
- 1.01 REFERENCES
- A. THE PUBLICATIONS LISTED BELOW FORM A PART OF THIS SPECIFICATION SECTION TO THE EXTENT REFERENCED. THE PUBLICATIONS ARE REFERRED TO WITHIN THE TEXT BY THE BASIC DESIGNATION ONLY.
 - 1. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) (2014) ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION
- 1.02 SYSTEM DESCRIPTION
- A. SANITARY SEWER GRAVITY PIPELINE - UPLANDS
 - 1. PROVIDE NEW UPLANDS SANITARY SEWER GRAVITY PIPING FROM RESTROOM FACILITY TO EXISTING MANHOLE. INSTALL CLEANOUT JUST OUTSIDE THE RESTROOM STRUCTURE AND A MANHOLE WHERE A CHANGE IN HORIZONTAL ALIGNMENT IS REQUIRED.
- 1.03 SUBMITTALS
- A. SUBMIT PRODUCT INFORMATION ON PIPELINE, CLEANOUT, AND MANHOLE MATERIALS, INCLUDING MANUFACTURER'S STANDARD DRAWINGS AND CATALOG CUTS, SHOWING COMPLIANCE WITH THE REQUIREMENTS OF THIS SPECIFICATION.
- 1.04 DELIVERY, STORAGE, AND HANDLING
- A. DELIVERY AND STORAGE
 - 1. PIPING
 - a. INSPECT MATERIALS DELIVERED TO SITE FOR DAMAGE; STORE WITH MINIMUM OF HANDLING. STORE MATERIALS ON SITE IN ENCLOSURES OR UNDER PROTECTIVE COVERINGS. STORE PIPING, JOINTING MATERIALS, ETC., UNDER COVER OUT OF DIRECT SUNLIGHT. DO NOT STORE MATERIALS DIRECTLY ON THE GROUND. KEEP INSIDE OF PIPES AND FITTINGS FREE OF DIRT AND DEBRIS.
 - 2. METAL ITEMS
 - a. CHECK UPON ARRIVAL; IDENTIFY AND SEGREGATE AS TO TYPES, FUNCTIONS, AND SIZES. STORE OFF THE GROUND IN A MANNER AFFORDING EASY ACCESSIBILITY AND NOT CAUSING EXCESSIVE RUSTING OR COATING WITH GREASE OR OTHER OBJECTIONABLE MATERIALS.
 - B. HANDLING
 - 1. HANDLE PIPE, FITTINGS, AND OTHER ACCESSORIES IN SUCH MANNER AS TO ENSURE DELIVERY TO THE TRENCH IN SOUND UNDAMAGED CONDITION. CARRY, DO NOT DRAG, PIPE TO TRENCH.
- PART 2 - PRODUCTS
- 2.01 PIPELINE MATERIALS
- A. PIPE SHALL BE OF THE SIZES INDICATED AND SHALL CONFORM TO THE RESPECTIVE SPECIFICATIONS AND OTHER REQUIREMENTS SPECIFIED BELOW. SUBMIT MANUFACTURER'S STANDARD DRAWINGS OR CATALOG CUTS.
 - B. POLYVINYL CHLORIDE (PVC) PIPE GRAVITY SEWER PIPE
 - MATERIALS SHALL BE IDENTIFIED BY MANUFACTURER AS BEING SUITABLE FOR SANITARY SEWER APPLICATIONS. PIPE AND FITTINGS SHALL BE SOLID WALL AND CONFORM TO WSDOT SECTION 9-05.12(1), ASTM D 3034, SDR 35. JOINTS FOR SOLID WALL PVC PIPE SHALL CONFORM TO ASTM D 3212 USING ELASTOMERIC GASKETS CONFORMING TO ASTM F 477.
 - C. PRECAST MANHOLE
 - MATERIALS REQUIRED FOR CONSTRUCTION OF MANHOLE SHALL CONFORM TO WSDOT SECTION 7-05.2. MANHOLES, INCLUDING FRAME AND LID, SHALL BE DESIGNED FOR HS-25 WHEEL LIVE LOAD. MANHOLE SHALL CONFORM TO WSDOT STANDARD PLAN B-15.60-01, TYPE 3. RING AND COVER SHALL CONFORM TO WSDOT STANDARD PLAN B-30.70-03.
 - D. CLEANOUT
 - MATERIALS REQUIRED FOR CONSTRUCTION OF CLEANOUT SHALL CONFORM TO WSDOT SECTION 7-19.2. CLEANOUT, INCLUDING FRAME AND LID, SHALL BE DESIGNED FOR HS-25 WHEEL LIVE LOAD. CLEANOUT SHALL CONFORM TO WSDOT STANDARD PLAN B-85.40-00.
- PART 3 - EXECUTION
- 3.01 INSTALLATION OF PIPELINES AND APPURTENANT CONSTRUCTION
- A. GENERAL REQUIREMENTS FOR INSTALLATION OF PIPELINES WSDOT, SECTION 7-08 AND SECTION 7-17.3.
 - 1. LOCATION
 - a. WORK COVERED BY THIS SECTION SHALL TERMINATE 5'-0" FROM FACE OF RESTROOM FACILITY. CURRENT UNIFORM PLUMBING CODE (UPC) APPLIES WITHIN 5'-0" OF RESTROOM. DO NOT LAY GRAVITY SANITARY SEWER LINE CLOSER HORIZONTALLY TO POTABLE WATER LINE THAN SHOWN ON DRAWINGS.
 - 2. EARTHWORK
 - a. PERFORM TRENCHING / EARTHWORK OPERATIONS IN ACCORDANCE WITH SECTION 31 00 00 EARTHWORK.
 - 3. CONNECTIONS TO EXISTING LINES
 - a. OBTAIN APPROVAL FROM THE PORT BEFORE MAKING CONNECTION TO EXISTING MANHOLE. CONDUCT WORK FOR MINIMAL TO NO INTERRUPTION OF SERVICE ON EXISTING LINE.
- 3.02 FIELD QUALITY CONTROL
- A. FIELD TESTS AND INSPECTIONS
 - 1. THE ENGINEER WILL CONDUCT FIELD INSPECTIONS AND WITNESS FIELD TESTS SPECIFIED BY THE REFERENCED WSDOT SPECIFICATION. THE CONTRACTOR SHALL PERFORM FIELD TESTS AND PROVIDE LABOR, EQUIPMENT, AND INCIDENTALS REQUIRED FOR TESTING, EXCEPT THAT WATER AND ELECTRIC POWER NEEDED FOR FIELD TESTS WILL BE FURNISHED. BE ABLE TO PRODUCE EVIDENCE, WHEN REQUIRED, THAT EACH ITEM OF WORK HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.

BID DOCUMENTS

MARK	REVISION	DESCRIPTION	BY	APP.	DATE



DRAWN BY MDB
 DESIGN BY GDN
 CHECK BY CSB
 PROJ MGR CSB

**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II**

UPLAND CIVIL SPECIFICATIONS - SHEET 4

DRAWING NO. **G-6**
 PROJECT NO. **FAWAT-12-145**
 DATE: **4/11/16**
 SHEET NO. **6 OF 48**

SECTION 34 40 00 - STORM DRAINAGE

PART 1 - GENERAL

1.01 SUMMARY

- A. EXTENT OF WORK: THE LOCATION AND EXTENT OF STORM DRAINAGE WORK IS INDICATED ON THE DRAWINGS. THE WORK INCLUDES THE REQUIREMENTS FOR PROVIDING STORM SEWER PIPING, SURFACE TRENCHES, STORM DRAINAGE STRUCTURES, AND TREATMENT DEVICES.

1.02 REFERENCES

- A. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, 2014 EDITION.
- B. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO).
- C. AMERICAN WATER WORKS ASSOCIATION (AWWA).

1.03 QUALITY ASSURANCE:

- A. INSPECTION AND TESTING: NECESSARY TESTING AND INSPECTION WILL BE PERFORMED BY THE CONTRACTOR AND WITNESSED BY THE PORT. THE PORT MAY OBTAIN COPIES OF TEST RESULTS FROM THE CONTRACTOR AT NO COST.

1.04 SUBMITTALS

SUBMIT THE FOLLOWING FOR ACCEPTANCE:

- A. PRODUCT DATA: SUBMIT PRODUCT DATA SHOWING CONFORMANCE TO THE REQUIREMENTS OF THIS SPECIFICATION FOR ALL ITEMS INCLUDED IN THIS SECTION AND DRAINAGE FEATURES SHOWN ON DRAWINGS.
- B. SUBMIT MANUFACTURER'S INFORMATION SHOWING LOAD RATING FOR TRENCH DRAIN FRAME AND GRATE. TRENCH DRAIN FRAME AND GRATE SHALL BE RATED FOR AIRPORT PROOF LOADS OF 100,000 LB OR 200,000 LB PROOF LOAD.
- C. MANUFACTURER'S INSTALLATION INSTRUCTIONS TO BE FOLLOWED DURING CONSTRUCTION.
- D. SHOP DRAWINGS FOR ALL DRAINAGE TREATMENT STRUCTURES.

PART 2 - PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) PIPE GRAVITY STORM SEWER PIPE

- A. PIPE AND FITTINGS SHALL BE SOLID WALL AND CONFORM TO WSDOT SECTION 9-05.12(1) PIPE AND FITTINGS SHALL BE SOLID WALL AND CONFORM TO WSDOT SECTION 9-05.12(1), ASTM D 3034, SDR 35. JOINTS FOR SOLID WALL PVC PIPE SHALL CONFORM TO ASTM D 3212 USING ELASTOMERIC GASKETS CONFORMING TO ASTM F 477.

2.02 TRENCH DRAIN FRAME AND GRATE AT BOAT LAUNCH:

- A. FRAME AND GRATE SHALL HAVE HIGH STRENGTH AND DURABILITY, BE OF THE SAME MANUFACTURER, BE LOAD RATED FOR USE AT AIRPORTS AND/OR PORT FACILITIES AND MEET LOAD CLASS "F" BASED ON MODIFIED AASHTO M306 FOR AIRPORT PROOF LOAD OF 100,000 LB MINIMUM. PROOF LOAD INCLUDES A SAFETY FACTOR OF 2.5 AND AN IMPACT FACTOR OF 1.15. SUBMITTED MANUFACTURER'S LITERATURE DESCRIBING FRAME AND GRATE SHALL CLEARLY STATE CASTINGS ARE MANUFACTURED FOR USE AT AIRPORTS AND/OR PORT FACILITIES. GRATE SHALL BE BOLTED DOWN. FRAME AND GRATE SHALL BE NEENAH R-4993-DAB, TYPE T FRAME AND TYPE A GRATE, OR APPROVED EQUAL.
- B. BOLTED FRAMES AND GRATES SHALL BE SHIPPED ASSEMBLED. AT NO TIME SHALL UNITS BE DISASSEMBLED DURING INSTALLATION. ENSURE 3/16" GAP BETWEEN FRAME AND GRATE HAS NOT CHANGED IN TRANSPORT. FRAMES FROM THE GRATE MANUFACTURER SHALL BE USED INSTEAD OF TRADITIONAL ANGLE FRAMES TO PREVENT PROBLEMS ASSOCIATED WITH FRAMES BREAKING LOOSE FROM CONCRETE DUE TO BRAKING FORCES OF HEAVY VEHICLES, TORSIONAL FORCES DUE TO TURNING WHEELS, ETC.
- C. SIZE OF TRENCH DRAIN SHOWN ON DRAWINGS REPRESENTS WIDTH OF CONCRETE TRENCH OPENING BELOW GRATE, NOT OVERALL WIDTH OF GRATE. HEIGHT OF GRATE WHERE IT BEARS ON FRAME SHALL BE 2-INCHES.

2.03 ALL FRAME AND LID / GRATE CASTINGS:

- A. METAL CASTINGS SHALL CONFORM TO WSDOT SECTION 9-05.15.
- B. CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM SAND HOLES, GAS HOLES, SHRINKAGE, CRACKS AND OTHER SURFACE DEFECTS. CASTINGS SHALL BE GROUND SMOOTH AND WELL CLEANED BY SHOT BLASTING. BEARING SURFACES BETWEEN FRAMES AND GRATES SHALL BE CAST OR MACHINED WITH SUCH PRECISION TO PREVENT ROCKING.
- C. CASTINGS SHALL BE IDENTIFIABLE AND SHOW, AT A MINIMUM, THE FOLLOWING: NAME OF THE PRODUCING FOUNDRY, ASTM MATERIAL DESIGNATION, AND PART NUMBER..

2.04 WATER QUALITY VAULT AND CATCHBASINS:

- A. WATER QUALITY CATCHBASINS AND WATER QUALITY VAULT SHALL BE OF SAME MANUFACTURER - OLDCASTLE STORMWATER SOLUTIONS (KRISTAR) PERK FILTER FOR WASHINGTON STATE DESIGNS, OR APPROVED EQUAL.
- B. VAULT AND CATCHBASIN UNITS SHALL BE CONSTRUCTED OF PRECAST CONCRETE WITH INTERNAL MEDIA FILLED FILTER CARTRIDGES FOR TREATMENT OF THE STORMWATER AND A HIGH FLOW BYPASS. STORMWATER DESIGN FOR THIS PROJECT IS PER WASHINGTON STATE DEPARTMENT OF ECOLOGY REQUIREMENTS. TREATMENT UNITS SHALL HAVE WASHINGTON STATE DEPARTMENT OF ECOLOGY "GENERAL USE LEVEL DESIGNATION" (GULD) FOR PROVIDING BASIC TREATMENT. ANY STEEL COMPONENTS SHALL BE GALVANIZED WITH AN ADDITIONAL POWDER COATING FOR MARINE APPLICATION AND DESIGN LIFE OF 50 YEARS. MINIMUM ACTUAL WATER QUALITY FLOWRATES FOR EACH UNIT LOCATION IS AS FOLLOWS:
 1. FIVE 18" CARTRIDGES IN VAULT NEAR BOAT LAUNCH:
 - 44 GPM (WQ) & 252 GPM (100 YR PEAK)
 2. TWO 18" CARTRIDGE WQCB STA 2+02 ALONG 28TH ST.:
 - 12 GPM (WQ) & 65 GPM (100 YR PEAK)
 3. SINGLE 18" CARTRIDGE WQCB STA 6+67 ALONG 28TH ST:
 - 7 GPM (WQ) & 35 GPM (100 YR PEAK)
 4. THREE 18" CARTRIDGE WQCB, STA 6+33 ALONG 28TH ST.:
 - 26 GPM (WQ) & 144 GPM (100 YR PEAK)
 5. (2) FOUR 18" CARTRIDGE WQCB'S NEAR HENDERSON:
 - 73 GPM (WQ) & 410 GPM (100 YR PEAK) FOR BOTH

PART 3 - EXECUTION

3.01 GENERAL:

- A. CONSTRUCTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS, SECTION 7-04.3 AND 7-08.3.

3.02 EARTHWORK:

- A. EXCAVATION, BEDDING, AND BACKFILLING SHALL BE AS SPECIFIED IN SECTION 31 00 00 -EARTHWORK OF THESE SPECIFICATIONS.

3.03 SURVEY LINE AND GRADE:

- A. ALIGNMENT AND GRADE OF SLOPED GRAVITY DRAINAGE PIPING SHALL BE PERFORMED BY CONTRACTOR USING LASER BEAM (NOT TAUT LINE) AND METHODS DESCRIBED IN SECTION 7-08.3(2)A OF WSDOT STANDARD SPECIFICATIONS.

3.04 INSTALLATION OF UNDERGROUND PIPE:

FURNISH ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT FOR THE WORK AND PUMP, BAIL, OR OTHERWISE DEWATER THE TRENCH FOR THE DURATION OF THE CONSTRUCTION AND BACKFILL PERIOD.

- A. GENERAL: LAYING PIPE SHALL BE IN ACCORDANCE WITH SECTION 7-08.3(2) OF WSDOT STANDARD SPECIFICATIONS.
- B. PLACING: PLACE THE PIPE IN APPROPRIATE BEDDING GRADED TO CONFORM TO THE GRADES AND ALIGNMENT INDICATED ON THE DRAWINGS AND PREPARED AS SPECIFIED. ENSURE THAT THE PIPE HAS A FULL, SOLID BEARING ALONG ITS ENTIRE LENGTH. PROVIDE SMALL DEPRESSIONS FOR PIPE BELLS WHEN UTILIZED. MAKE MINOR ADJUSTMENTS TO LINE AND GRADE BY SCRAPING AWAY, OR FILLING IN WITH, BEDDING MATERIAL. DO NOT SUPPORT PIPES ON BLOCKS OR MOUNDS OF ANY NATURE.
- C. JOINTING: TAKE CARE TO PROPERLY ALIGN THE PIPE AND CLEAN THE BELL AND SPIGOT OR TONGUE OF THE PIPE. GASKETS MUST BE STRAIGHT, PROPERLY LUBRICATED AND WITHOUT TWIST. THE PIPE SHALL BE PARTIALLY SUPPORTED BY HAND, SLING, OR CRANE, AS REQUIRED, TO MINIMIZE LATERAL PRESSURE ON THE GASKET AND TO MAINTAIN CONCENTRICITY UNTIL THE PIPE HAS BEEN FORCED INTO FINAL LONGITUDINAL POSITION IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. PIPE HANDLING, AFTER THE GASKET HAS BEEN AFFIXED, SHALL BE CAREFULLY CONTROLLED TO AVOID BUMPING THE GASKET AND, THUS, KNOCKING IT OUT OF POSITION OR LOADING IT WITH DIRT OR OTHER FOREIGN MATERIAL. GASKETS SO DISTURBED SHALL BE REMOVED, CLEANED, RELUBRICATED, AND REPLACED BEFORE THE JOINT IS ATTEMPTED. APPLY SUFFICIENT RESTRAINT TO THE LINE TO ENSURE THAT THE JOINTS, ONCE HOME, ARE HELD SO BY TAMPING FILL MATERIAL UNDER AND ALONGSIDE THE PIPE. AT THE END OF THE DAY'S WORK, BLOCK THE LAST PIPE IN SUCH A MANNER AS MAY BE REQUIRED TO PREVENT CREEP DURING DOWN TIME.

3.05 INSTALLATION OF DRAINAGE STRUCTURES:

- A. FURNISH ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT FOR THE WORK AND PUMP, BAIL, OR OTHERWISE DEWATER THE TRENCH OR PIT FOR THE DURATION OF THE CONSTRUCTION AND BACKFILL PERIOD.
 1. GENERAL: INSTALLATION OF DRAINAGE STRUCTURES SHALL BE IN ACCORDANCE WITH SECTION 7-05.3 OF WSDOT STANDARD SPECIFICATIONS.
 2. ADDITIONAL REQUIREMENTS FOR DRAINAGE STRUCTURES:
 - a. PLACE DRAINAGE STRUCTURES AT THE ELEVATION AND LOCATION INDICATED ON THE DRAWINGS UPON THE APPROPRIATE BEDDING, PREPARED IN ACCORDANCE WITH SECTION 31 00 00 -EARTHWORK.
 - b. CAREFULLY PLACE PRECAST DRAINAGE STRUCTURES ON THE PREPARED BEDDING SO EACH IS SUPPORTED FULLY AND UNIFORMLY IN TRUE ALIGNMENT.
 - c. ALL LIFT HOLES AND ALL JOINTS BETWEEN PRECAST ELEMENTS SHALL BE THOROUGHLY WETTED AND THEN COMPLETELY FILLED WITH MORTAR, SMOOTHED AND POINTED BOTH INSIDE AND OUT, TO ENSURE WATER TIGHTNESS.
 - d. PLACE PRECAST SECTIONS AND ALIGN TO PROVIDE VERTICAL SIDES AND VERTICAL ALIGNMENT OF THE LADDER RUNGS. THE COMPLETED DRAINAGE STRUCTURE SHALL BE RIGID, TRUE TO DIMENSIONS AND WATERTIGHT.
 - e. CONSTRUCT DRAINAGE VAULT STRUCTURE TO PROVIDE ADJUSTMENT SPACE FOR SETTING COVER FASTENINGS TO A FINISHED GRADE. THE DRAINAGE STRUCTURE GRADE FURNISHED BY THE ENGINEER FOR CONSTRUCTION ON DRAWINGS INDICATES THE APPROXIMATE FINISH GRADE AND TOP OF GRATE / LID FOR DRAINAGE STRUCTURES. NO SEPARATE PAYMENT FOR FINAL ADJUSTMENT OF THE COVER CASTINGS FOR NEW CONSTRUCTION WILL BE MADE, AND ALL COSTS THEREOF WILL BE CONSIDERED AS INCIDENTAL AND BE INCLUDED IN THE PRICE FOR THE DRAINAGE STRUCTURE.
 - f. TOP SLAB OF DRAINAGE STRUCTURE VAULTS SHALL BE NOT MORE THAN 20-INCHES FROM FINISH GRADE. HEIGHT OF ADJUSTING RINGS SHALL NOT BE LESS THAN 2-INCHES AND NOT MORE THAN 16-INCHES.
 - g. PIPE CONNECTIONS: PLACE ALL PVC PIPES ENTERING OR LEAVING THE DRAINAGE STRUCTURES ON FIRMLY COMPACTED BEDDING, PARTICULARLY WITHIN THE AREA OF THE DRAINAGE STRUCTURE EXCAVATION, WHICH MAY BE DEEPER THAN THAT OF THE PIPE TRENCH AND PROVIDE A FLEXIBLE JOINT (BELL AND SPIGOT) WITHIN 12 INCHES OF THE MANHOLE STRUCTURE. TAKE SPECIAL CARE TO SEE THE OPENINGS THROUGH WHICH PIPES ENTER THE STRUCTURE ARE COMPLETELY AND FIRMLY RAMMED FULL OF MORTAR TO ENSURE WATER TIGHTNESS, AND END OF PIPE CUT TO BE FLUSH WITH INSIDE FACE OF CATCH BASIN STRUCTURES. LINK-SEAL OR EQUAL WATERTIGHT DEVICES MAY BE USED IN-LIEU OF MORTAR TO FILL VOID SPACE BETWEEN PIPE AND WALL OF STRUCTURE.
 - h. BACKFILL: HAND-PLACE BACKFILL AROUND THE DRAINAGE STRUCTURE, EXTENDING AT LEAST ONE PIPE LENGTH INTO EACH TRENCH AND TAMP WITH SELECT MATERIAL UP TO AN ELEVATION OF SIX INCHES ABOVE THE CROWN OF ALL ENTERING PIPES. CONFORM TO THE APPLICABLE PROVISIONS OF SECTION 31 00 00 - EARTHWORK. BACKFILL AROUND PIPE ON DOCK SHALL BE AS DETAILED ON THE DRAWINGS.

3.06 FIELD QUALITY CONTROL:

- A. CONTRACTOR SHALL PERFORM CLEANING AND TESTING OF THE STORM DRAINAGE SYSTEM IN ACCORDANCE WITH SECTION 7-04.3(1) AND OF WSDOT STANDARD SPECIFICATIONS.

MARK	REVISION	DESCRIPTION	BY	APP.	DATE



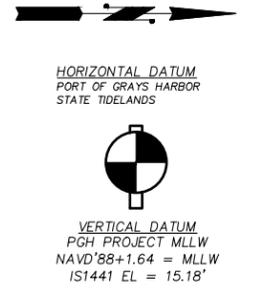
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**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II**

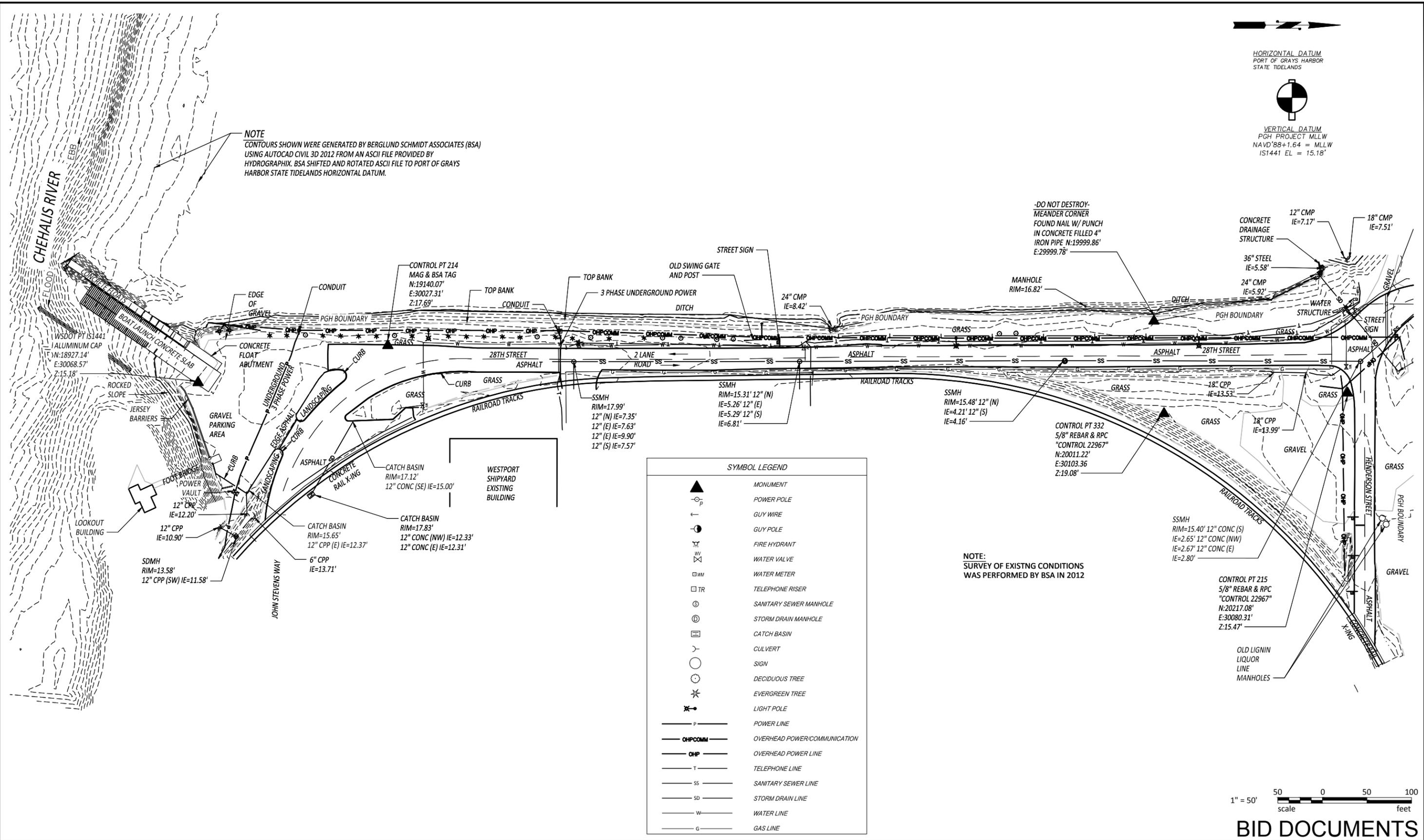
UPLAND CIVIL SPECIFICATIONS - SHEET 5

BID DOCUMENTS

DRAWING NO. **G-7**
 PROJECT NO. **FAWAT-12-145**
 DATE: **4/11/16**
 SHEET NO. **7 OF 48**



NOTE
 CONTOURS SHOWN WERE GENERATED BY BERGLUND SCHMIDT ASSOCIATES (BSA) USING AUTOCAD CIVIL 3D 2012 FROM AN ASCII FILE PROVIDED BY HYDROGRAPHIX. BSA SHIFTED AND ROTATED ASCII FILE TO PORT OF GRAYS HARBOR STATE TIDELANDS HORIZONTAL DATUM.



-DO NOT DESTROY-
 MEANDER CORNER
 FOUND NAIL W/ PUNCH
 IN CONCRETE FILLED 4"
 IRON PIPE N:19999.86'
 E:29999.78'

SYMBOL LEGEND

	MONUMENT
	POWER POLE
	GUY WIRE
	GUY POLE
	FIRE HYDRANT
	WATER VALVE
	WATER METER
	TELEPHONE RISER
	SANITARY SEWER MANHOLE
	STORM DRAIN MANHOLE
	CATCH BASIN
	CULVERT
	SIGN
	DECIDUOUS TREE
	EVERGREEN TREE
	LIGHT POLE
	POWER LINE
	OVERHEAD POWER/COMMUNICATION
	OVERHEAD POWER LINE
	TELEPHONE LINE
	SANITARY SEWER LINE
	STORM DRAIN LINE
	WATER LINE
	GAS LINE

NOTE:
 SURVEY OF EXISTING CONDITIONS
 WAS PERFORMED BY BSA IN 2012



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**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II**
 EXISTING CONDITIONS

DRAWING NO. **C-1**
 PROJECT NO. **FAWAT-12-145**
 DATE: **4/29/16**
 SHEET NO. **8 OF 48**



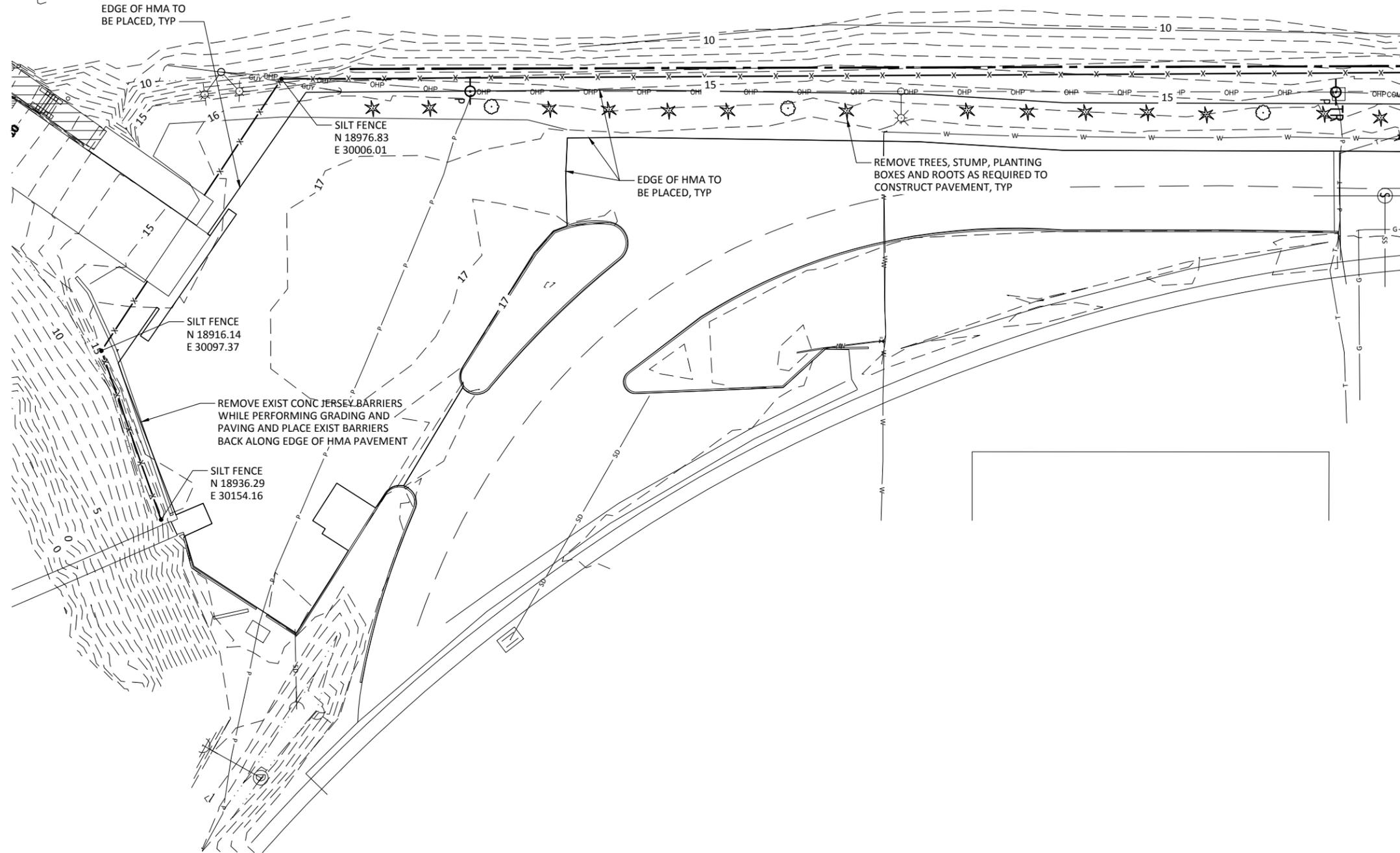
HORIZONTAL DATUM
PORT OF GRAYS HARBOR
STATE TIDELANDS



VERTICAL DATUM
PGH PROJECT MLLW
NAVD'88+1.64 = MLLW
IS1441 EL = 15.18'

NOTES:

- REFER TO ELECTRICAL DRAWINGS FOR DEMO RELATED TO ELECTRICAL UTILITY.



MATCH LINE SEE DWG C-3

LEGEND:

- x-x-x- SILT FENCE & LIMITS OF CLEARING AND GRUBBING
- - - - - PORT OF GRAYS HARBOR BOUNDARY



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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
TESC & DEMO PLAN - SHEET 1

DRAWING NO. **C-2**
PROJECT NO. FAWAT-12-145
DATE: 3/22/17
SHEET NO. 9 OF 48



HORIZONTAL DATUM
PORT OF GRAYS HARBOR
STATE TIDELANDS



VERTICAL DATUM
PGH PROJECT MLLW
NAVD'88+1.64 = MLLW
IS1441 EL = 15.18'

MATCH LINE SEE DWG C-2

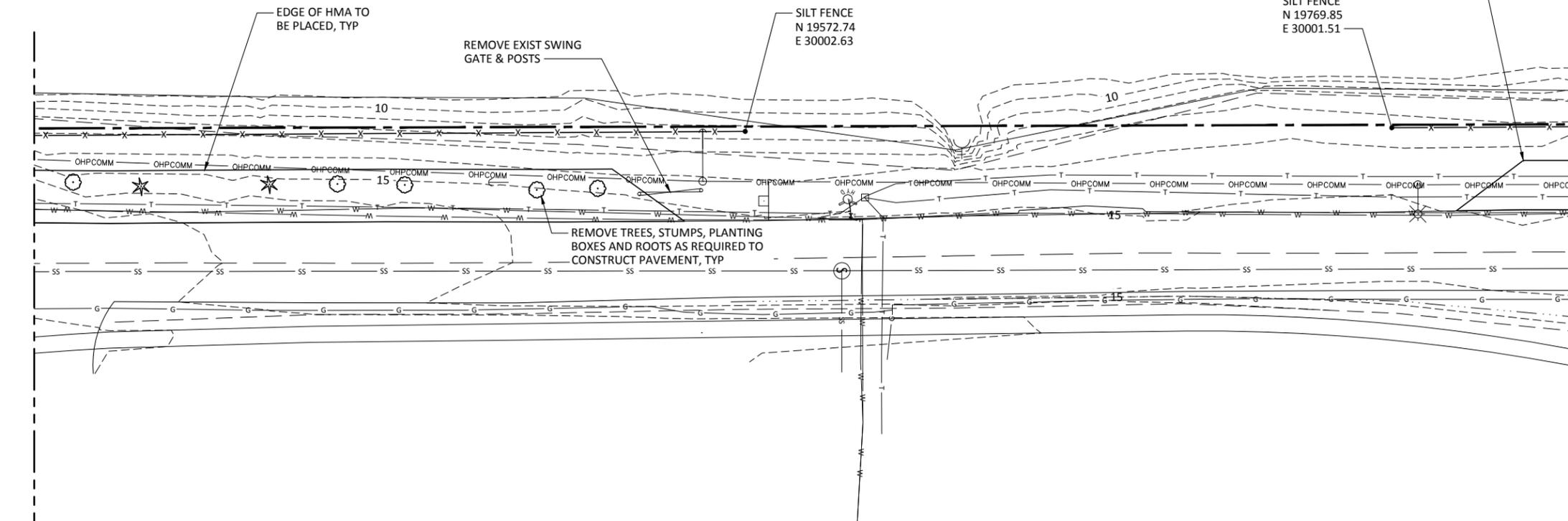
MATCH LINE SEE DWG C-4

LEGEND:

- x—x—x— SILT FENCE & LIMITS OF CLEARING AND GRUBBING
- — — — — PORT OF GRAYS HARBOR BOUNDARY

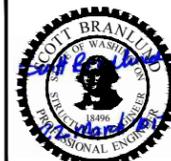


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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
TESC & DEMO PLAN - SHEET 2

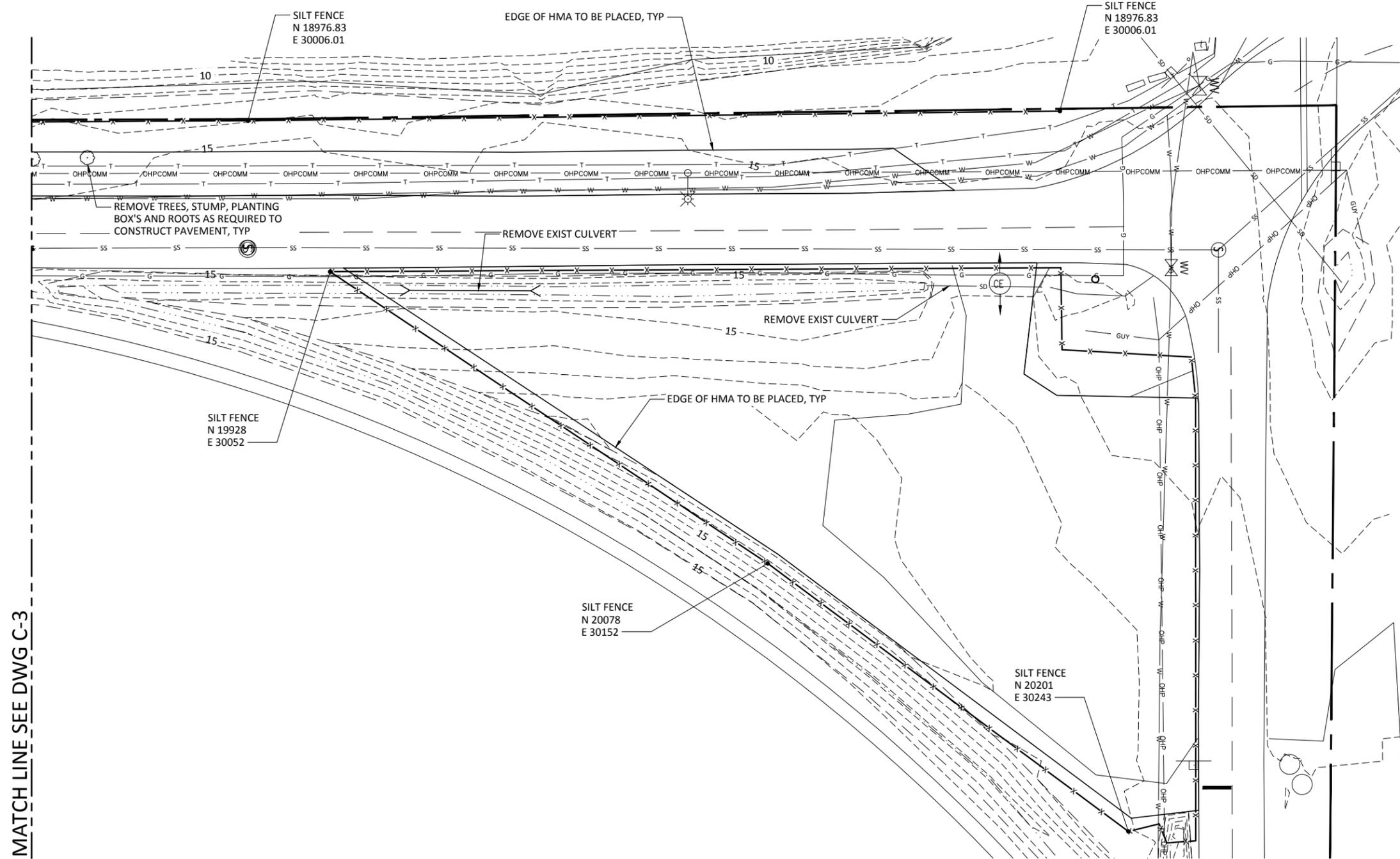
DRAWING NO. **C-3**
PROJECT NO. FAWAT-12-145
DATE: 3/22/17
SHEET NO. 10 OF 48



HORIZONTAL DATUM
PORT OF GRAYS HARBOR
STATE TIDELANDS



VERTICAL DATUM
PGH PROJECT MLLW
NAVD'88+1.64 = MLLW
IS1441 EL = 15.18'



MATCH LINE SEE DWG C-3

LEGEND:

- SILT FENCE & LIMITS OF CLEARING AND GRUBBING
- PORT OF GRAYS HARBOR BOUNDARY
- STABILIZED CONSTRUCTION ENTRANCE



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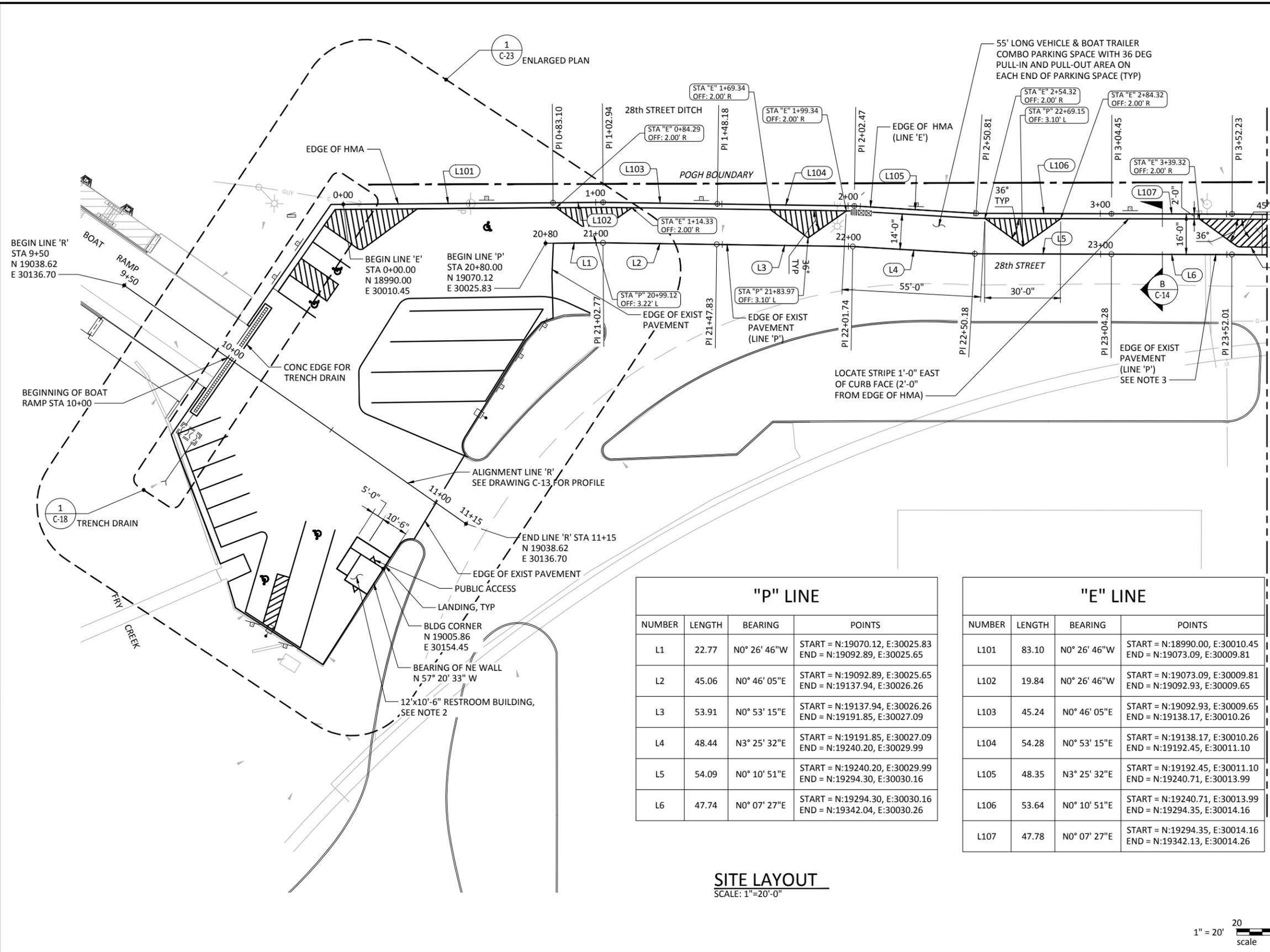
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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
TESC & DEMO PLAN - SHEET 3

DRAWING NO. **C-4**
PROJECT NO. FAWAT-12-145
DATE: 3/22/17
SHEET NO. 11 OF 48



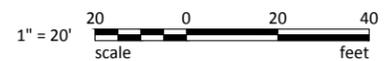
NOTES:

1. ALIGNMENT LINE 'E' IS A 16'-0" PARALLEL OFFSET OF ALIGNMENT LINE 'P'.
2. RESTROOM BUILDING WILL BE PROVIDED BY THE PORT, WHICH WILL BE SIMILAR TO BUILDING SHOWN ON C-25. CONTRACTOR SHALL PROVIDE UTILITIES FOR BUILDING (REFER TO C-24) AND CONCRETE FOUNDATION. FOUNDATION SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE CURRENT CITY OF HOQUIAM BUILDING CODE AND THE RECOMMENDATIONS OF THE RESTROOM BUILDING MANUFACTURER. PORT WILL DELIVER BUILDING TO SITE ON TRUCK, AND CONTRACTOR SHALL OFF LOAD AND INSTALL THE RESTROOM BUILDING PER THE MANUFACTURERS INSTRUCTIONS.
3. SAW-CUT LINE AND PAVING LIMITS ALONG 28TH STREET IS LOCATED 6 INCHES EAST OF EXISTING EDGE OF PAVEMENT (LINE 'P'). THEREFORE, FOR SOUTH AREA OF 28TH STREET (PAVEMENT EXTENSION W/ CURB) PAVING WIDTH IS 16'-6" AS SHOWN IN SECTION 'B' ON DWG C-14. REPLACE EXISTING WHITE FOG-LINE STRIPING WHERE DISTURBED BY CONSTRUCTION.
4. METHOD TO CORRECTLY DETERMINE LAYOUT OF THE PAVEMENT EXTENSION & STRIPING ADJACENT AND PARALLEL TO 28TH STREET:
 - A. SAW-CUT EXIST ASPHALT PAVEMENT 6 INCHES EAST OF WEST EDGE OF PAVEMENT ALONG 28TH STREET WHERE PAVEMENT EXTENSION IS TO BE CONSTRUCTED.
 - B. FOR PAVEMENT EXTENSION SOUTH OF INGRAM STREET: FROM SAW-CUT LINE, OFFSET A DISTANCE OF 16'-6". THIS OFFSET WILL BE EDGE OF PAVEMENT EXTENSION (SEE SECTION 'B' ON DWG C-14). CRUSHED SURFACING BASE COURSE EXTENDS 1'-0" WEST OF PAVEMENT EDGE. FOR PAVEMENT EXTENSION NORTH OF INGRAM STREET: FROM SAW-CUT LINE, OFFSET A DISTANCE OF 15'-6". THIS OFFSET WILL BE EDGE OF PAVEMENT EXTENSION (SEE SECTION 'A' ON DWG C-15). NO EXTRUDED CURB FOR THIS PAVEMENT SECTION WITH ADJACENT GRASSY FILTER STRIP. CRUSHED SURFACING BASE COURSE EXTENDS 1'-0" WEST OF PAVEMENT EDGE.
 - C. FOR PAVEMENT EXTENSION SOUTH OF INGRAM STREET, CONSTRUCT EXTRUDED CONCRETE CURB SUCH THAT EAST FACE OF CURB IS 1'-0" FROM EDGE OF PAVEMENT EXTENSION.
 - D. FOR PAVEMENT EXTENSION SOUTH OF INGRAM STREET, WHITE STRIPE FOR BOAT TRAILER PARKING SHALL BE LOCATED 2'-0" FROM AND PARALLEL TO EDGE OF PAVEMENT EXTENSION. WHITE STRIP FOR PRIVATELY OWNED VEHICLES (POV) W/O BOAT TRAILER SHOWN ON C-6 SHALL BE LOCATED 5'-0" FROM AND PARALLEL TO EDGE OF PAVEMENT EXTENSION. STRIPING FOR POV W/O BOAT TRAILER PARKING SHALL CREATE SPACES THAT ARE 8'-0" WIDE. FOR PAVEMENT EXTENSION NORTH OF INGRAM STREET, WHITE STRIPE FOR BOAT TRAILER PARKING SHALL BE LOCATED 1'-0" FROM AND PARALLEL TO EDGE OF PAVEMENT EXTENSION.
 - E. LENGTH OF VEHICLE AND BOAT TRAILER PARKING BETWEEN MANEUVERING ISLANDS SHALL BE 55'-0" IN ALL CASES. LENGTH OF MANEUVERING ISLAND ADJACENT TO CURB SHALL BE 30'-0" IN ALL CASES. ANGLE OF PULL-IN / PULL-OUT TO CREATE MANEUVERING ISLAND SHALL BE 36 DEGREES IN ALL CASES. RESULTING DIMENSION FROM TIP OF MANEUVERING ISLAND TO STRIPE PARALLEL AND ADJACENT TO CURB IS APPROXIMATELY 10'-9" TO 10'-11" DEPENDING ON ANGLE OF EXISTING PAVEMENT EDGE & CORRESPONDING PARALLEL ANGLE OF EDGE OF PAVEMENT EXTENSION.
 - F. RESTRIPE EXISTING WHITE FOG-LINE ADJACENT TO SAW-CUT LINES AS REQUIRED / IF DAMAGED DURING CONSTRUCTION.

"P" LINE			
NUMBER	LENGTH	BEARING	POINTS
L1	22.77	N0° 26' 46"W	START = N:19070.12, E:30025.83 END = N:19092.89, E:30025.65
L2	45.06	N0° 46' 05"E	START = N:19092.89, E:30025.65 END = N:19137.94, E:30026.26
L3	53.91	N0° 53' 15"E	START = N:19137.94, E:30026.26 END = N:19191.85, E:30027.09
L4	48.44	N3° 25' 32"E	START = N:19191.85, E:30027.09 END = N:19240.20, E:30029.99
L5	54.09	N0° 10' 51"E	START = N:19240.20, E:30029.99 END = N:19294.30, E:30030.16
L6	47.74	N0° 07' 27"E	START = N:19294.30, E:30030.16 END = N:19342.04, E:30030.26

"E" LINE			
NUMBER	LENGTH	BEARING	POINTS
L101	83.10	N0° 26' 46"W	START = N:18990.00, E:30010.45 END = N:19073.09, E:30009.81
L102	19.84	N0° 26' 46"W	START = N:19073.09, E:30009.81 END = N:19092.93, E:30009.65
L103	45.24	N0° 46' 05"E	START = N:19092.93, E:30009.65 END = N:19138.17, E:30010.26
L104	54.28	N0° 53' 15"E	START = N:19138.17, E:30010.26 END = N:19192.45, E:30011.10
L105	48.35	N3° 25' 32"E	START = N:19192.45, E:30011.10 END = N:19240.71, E:30013.99
L106	53.64	N0° 10' 51"E	START = N:19240.71, E:30013.99 END = N:19294.35, E:30014.16
L107	47.78	N0° 07' 27"E	START = N:19294.35, E:30014.16 END = N:19342.13, E:30014.26

SITE LAYOUT
SCALE: 1"=20'-0"



BID DOCUMENTS

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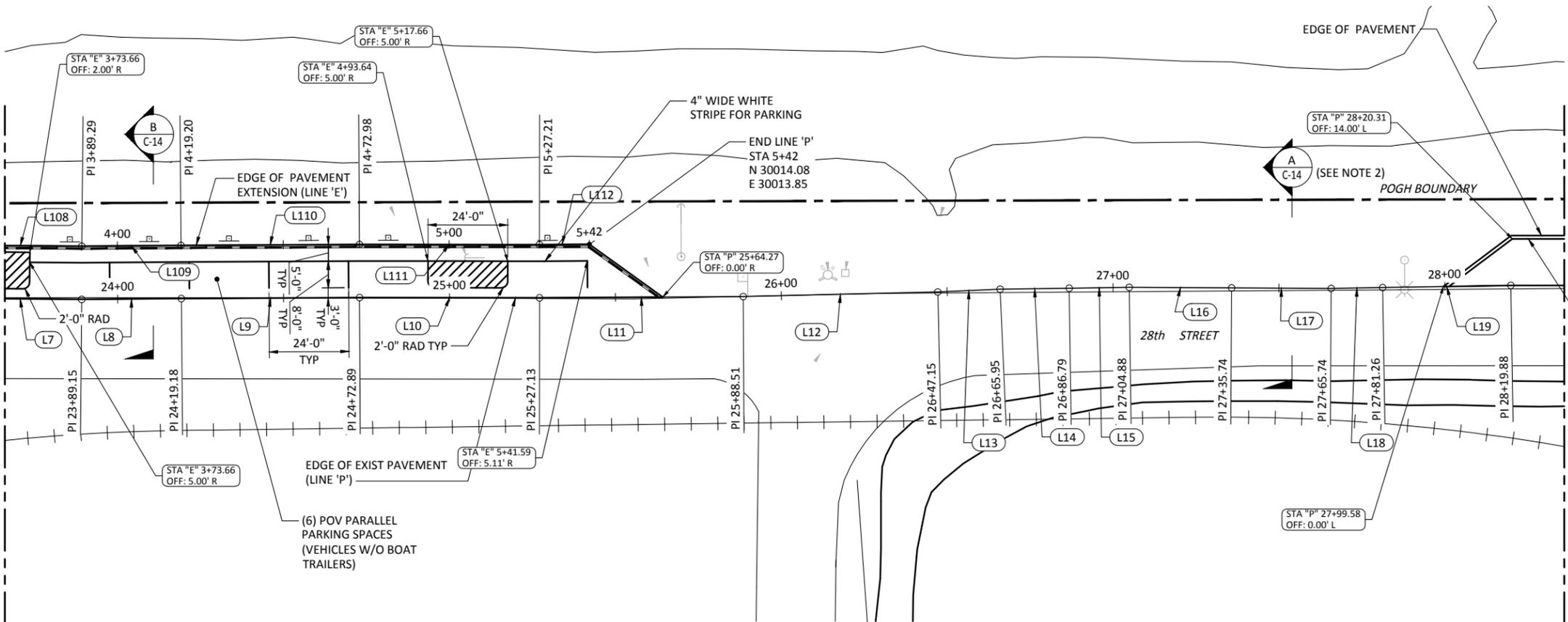
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PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II

SITE LAYOUT - SHEET 1

DRAWING NO. **C-5**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **12 OF 48**



- NOTES:**
- SEE DRAWING C-5 FOR NOTES.
 - SECTION 'A' SHOWN ON DWG C-14 APPLIES TO WORK NORTH OF P-LINE STA 28+00. SECTION 'B' SHOWN ON DWG C-14 APPLIES TO WORK SOUTH OF P-LINE STA 25+64.

MATCH LINE SEE DWG C-5

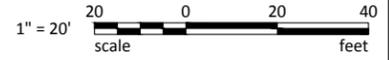
MATCH LINE SEE DWG C-7

"P" LINE			
NUMBER	LENGTH	BEARING	POINTS
L7	37.14	N0° 33' 54"E	START = N:19342.04, E:30030.26 END = N:19379.17, E:30030.63
L8	30.03	N0° 27' 37"W	START = N:19379.17, E:30030.63 END = N:19409.20, E:30030.39
L9	53.70	N0° 18' 51"W	START = N:19409.20, E:30030.39 END = N:19462.90, E:30030.09
L10	54.24	N0° 05' 02"E	START = N:19462.90, E:30030.09 END = N:19517.14, E:30030.17
L11	61.38	N0° 21' 40"W	START = N:19517.14, E:30030.17 END = N:19578.52, E:30029.78
L12	58.64	N1° 20' 40"W	START = N:19578.52, E:30029.78 END = N:19637.15, E:30028.41
L13	18.80	N2° 34' 45"W	START = N:19637.15, E:30028.41 END = N:19655.93, E:30027.56
L14	20.84	N0° 48' 46"W	START = N:19655.93, E:30027.56 END = N:19676.77, E:30027.27
L15	18.09	N0° 48' 46"W	START = N:19676.77, E:30027.27 END = N:19694.86, E:30027.01
L16	30.86	N0° 18' 55"E	START = N:19694.86, E:30027.01 END = N:19725.71, E:30027.18

"P" LINE			
NUMBER	LENGTH	BEARING	POINTS
L17	30.00	N0° 18' 55"E	START = N:19725.71, E:30027.18 END = N:19755.72, E:30027.34
L18	15.52	N0° 58' 28"W	START = N:19755.72, E:30027.34 END = N:19771.23, E:30027.08
L19	38.62	N0° 58' 28"W	START = N:19771.23, E:30027.08 END = N:19809.84, E:30026.42

"E" LINE			
NUMBER	LENGTH	BEARING	POINTS
L108	37.05	N0° 33' 54"E	START = N:19342.13, E:30014.26 END = N:19379.18, E:30014.63
L109	29.91	N0° 27' 37"W	START = N:19379.18, E:30014.63 END = N:19409.09, E:30014.39
L110	53.78	N0° 18' 51"W	START = N:19409.09, E:30014.39 END = N:19462.87, E:30014.09
L111	54.24	N0° 05' 02"E	START = N:19462.87, E:30014.09 END = N:19517.11, E:30014.17
L112	15.06	N0° 21' 40"W	START = N:19517.11, E:30014.17 END = N:19532.17, E:30014.08

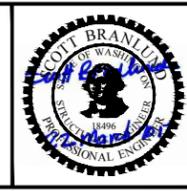
SITE LAYOUT
SCALE: 1"=20'-0"



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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

SITE LAYOUT - SHEET 2

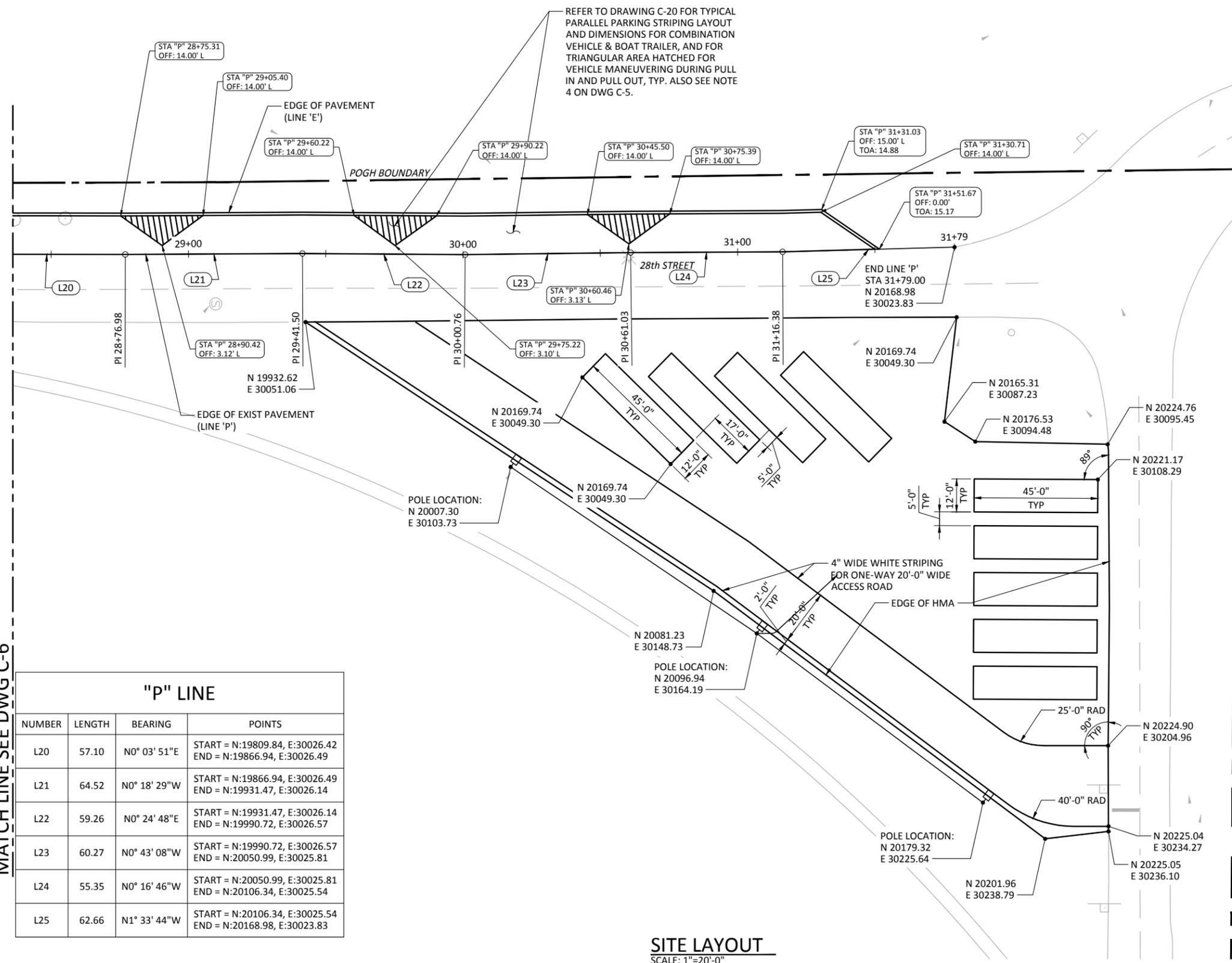
DRAWING NO. **C-6**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **13 OF 48**



NOTES:

- SEE DRAWING C-5 FOR NOTES.

REFER TO DRAWING C-20 FOR TYPICAL PARALLEL PARKING STRIPING LAYOUT AND DIMENSIONS FOR COMBINATION VEHICLE & BOAT TRAILER, AND FOR TRIANGULAR AREA HATCHED FOR VEHICLE MANEUVERING DURING PULL IN AND PULL OUT, TYP. ALSO SEE NOTE 4 ON DWG C-5.



MATCH LINE SEE DWG C-6

"P" LINE			
NUMBER	LENGTH	BEARING	POINTS
L20	57.10	N0° 03' 51"E	START = N:19809.84, E:30026.42 END = N:19866.94, E:30026.49
L21	64.52	N0° 18' 29"W	START = N:19866.94, E:30026.49 END = N:19931.47, E:30026.14
L22	59.26	N0° 24' 48"E	START = N:19931.47, E:30026.14 END = N:19990.72, E:30026.57
L23	60.27	N0° 43' 08"W	START = N:19990.72, E:30026.57 END = N:20050.99, E:30025.81
L24	55.35	N0° 16' 46"W	START = N:20050.99, E:30025.81 END = N:20106.34, E:30025.54
L25	62.66	N1° 33' 44"W	START = N:20106.34, E:30025.54 END = N:20168.98, E:30023.83

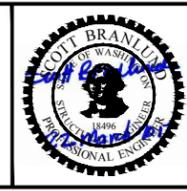
SITE LAYOUT
SCALE: 1"=20'-0"



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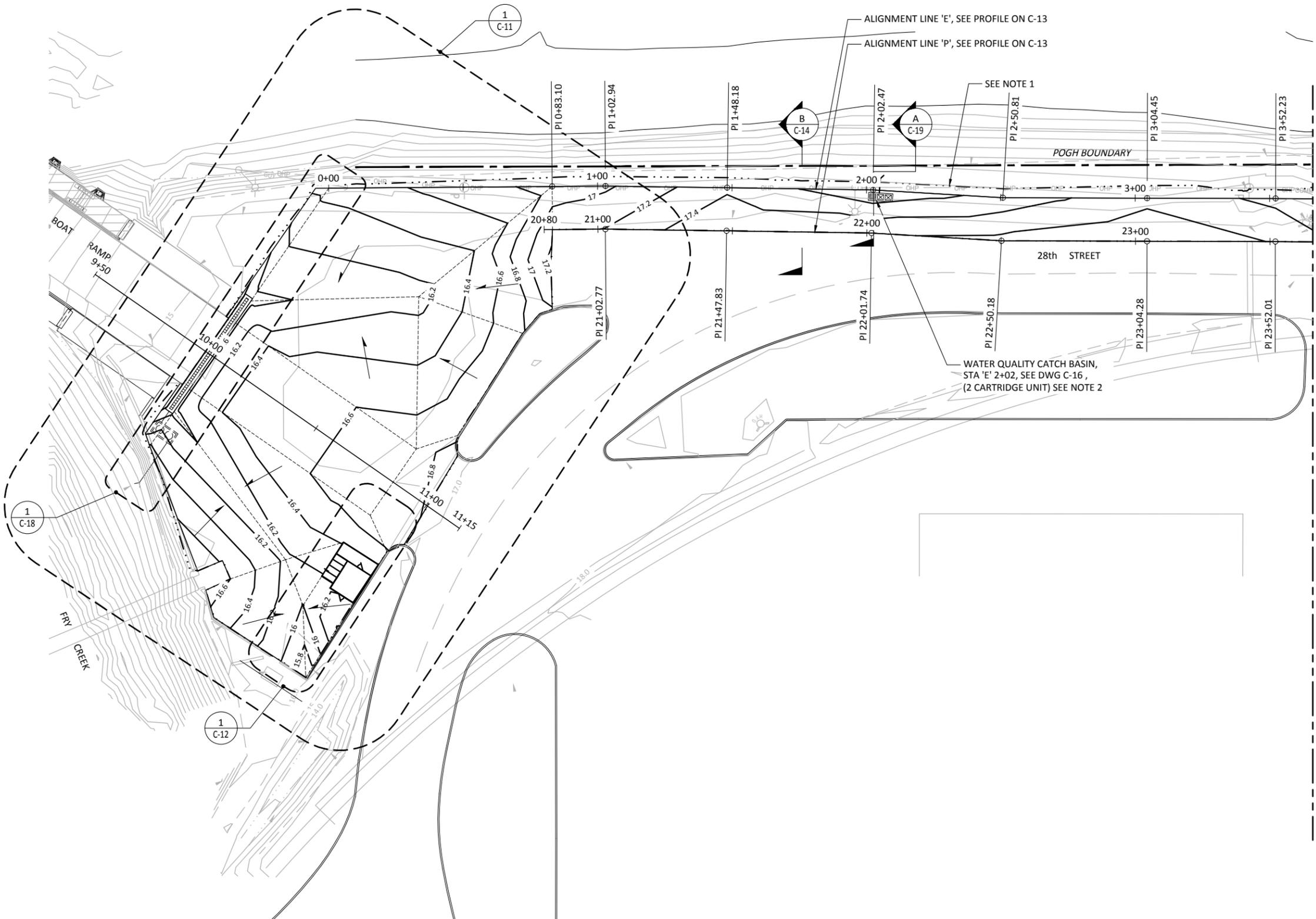
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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

SITE LAYOUT - SHEET 3

DRAWING NO. **C-7**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **14 OF 48**

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NOTES:

- EXISTING CONTOURS ARE SHOWN EVERY 1'-0". CONTOURS IN DEVELOPED AREAS ARE SHOWN EVERY 0.20' TO CLARIFY GRADING IN RELATIVELY FLAT AREAS. TIGHTLY SPACED 0.20' CONTOURS ARE NOT SHOWN FOR FILL SLOPE WEST OF HMA PAVEMENT EDGE ALONG 28TH STREET, BUT TOE OF FILL SLOPE LOCATION IS SHOWN BY PHANTOM LINE.
- GRATING OF WQCB SHALL BE AT LOW POINT OF PROFILE.

LEGEND

- GRADE BREAK LINES, VALLEY LINES, RIDGE LINES
- (16.78) REFERENCE ELEVATION (EXISTING FEATURES)
- 16.12 FINISH GRADE
- TOE OF FILL SLOPE (GRADING BOUNDARY FOR FILL AREAS)

MATCH LINE SEE DWG C-9

GRADING & DRAINAGE PLAN
SCALE: 1"=20'-0"

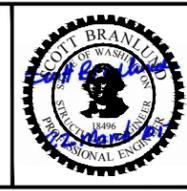


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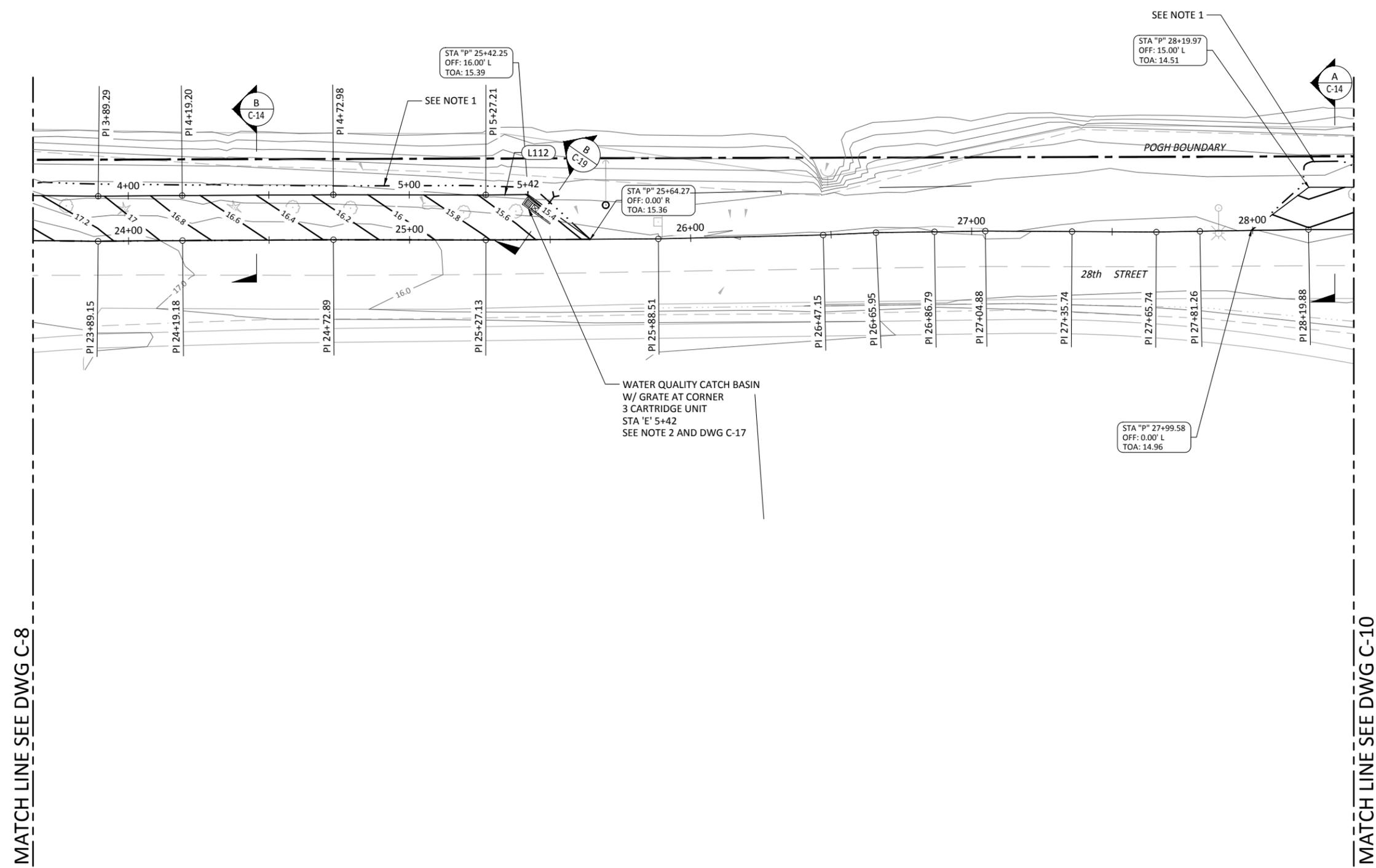


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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

GRADING & DRAINAGE PLAN - SHEET 1

DRAWING NO. **C-8**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **15 OF 48**



NOTES:

- EXISTING CONTOURS ARE SHOWN EVERY 1'-0". CONTOURS IN DEVELOPED AREAS ARE SHOWN EVERY 0.20' TO CLARIFY GRADING IN RELATIVELY FLAT AREAS. TIGHTLY SPACED 0.20' CONTOURS ARE NOT SHOWN FOR FILL SLOPE WEST OF HMA PAVEMENT EDGE ALONG 28TH STREET, BUT TOE OF FILL SLOPE LOCATION IS SHOWN BY PHANTOM LINE.
- GRATE OF WQCB SHALL BE LOCATED AT CORNER OF EXTRUDED CURB. THE STATION IS AT THE CORNER OF THE EXTRUDED CURB AND THE LOW POINT OF HMA.

LEGEND

- GRADE BREAK LINES, VALLEY LINES, RIDGE LINES
- (16.78) REFERENCE ELEVATION (EXISTING FEATURES)
- 16.12 FINISH GRADE
- TOE OF FILL SLOPE (GRADING BOUNDARY FOR FILL AREAS)

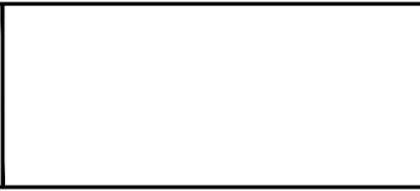
GRADING & DRAINAGE PLAN
SCALE: 1"=20'-0"



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**PORT OF GRAYS HARBOR
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CONSTRUCTION PHASE II**

GRADING & DRAINAGE PLAN - SHEET 2

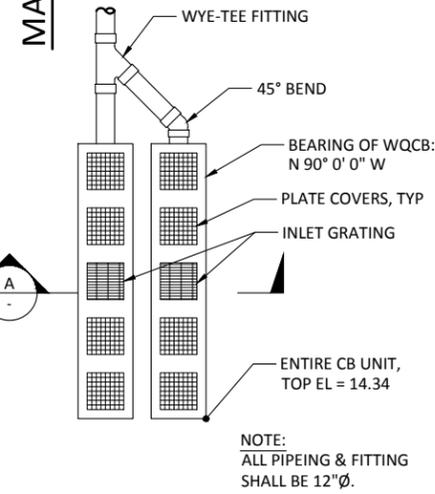
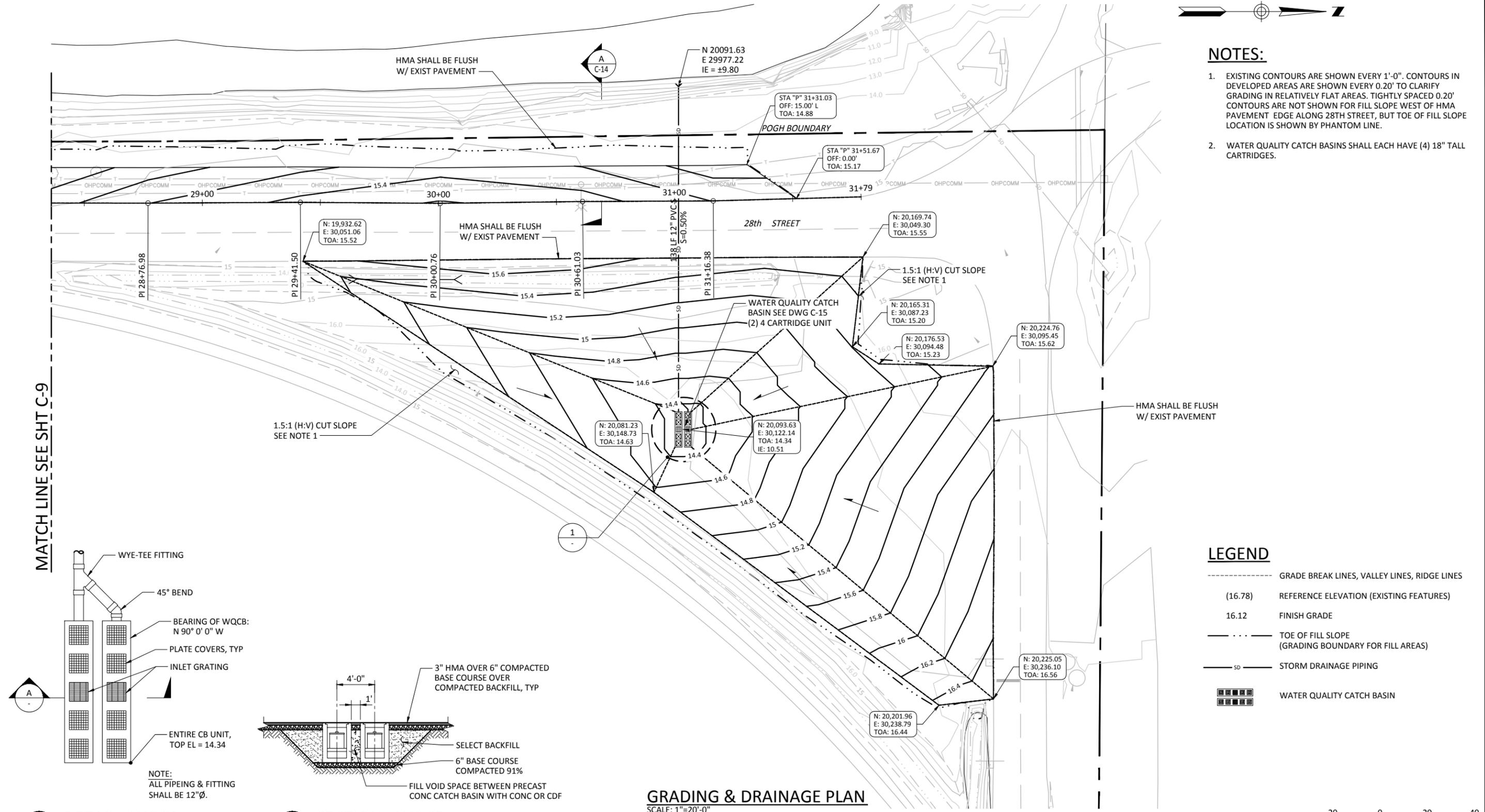
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PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **16 OF 48**



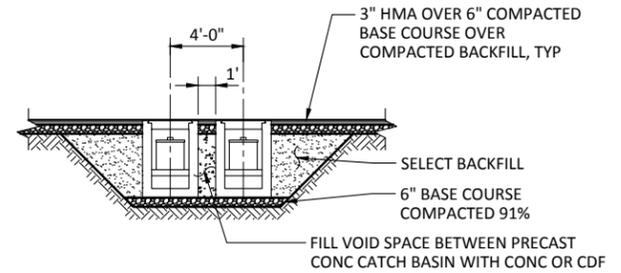
NOTES:

- EXISTING CONTOURS ARE SHOWN EVERY 1'-0". CONTOURS IN DEVELOPED AREAS ARE SHOWN EVERY 0.20' TO CLARIFY GRADING IN RELATIVELY FLAT AREAS. TIGHTLY SPACED 0.20' CONTOURS ARE NOT SHOWN FOR FILL SLOPE WEST OF HMA PAVEMENT EDGE ALONG 28TH STREET, BUT TOE OF FILL SLOPE LOCATION IS SHOWN BY PHANTOM LINE.
- WATER QUALITY CATCH BASINS SHALL EACH HAVE (4) 18" TALL CARTRIDGES.

MATCH LINE SEE SHT C-9



1 **DETAIL - WQCB**
SCALE: NTS



A **SECTION - WQCB**
SCALE: NTS

GRADING & DRAINAGE PLAN
SCALE: 1"=20'-0"

LEGEND

- GRADE BREAK LINES, VALLEY LINES, RIDGE LINES
- (16.78) REFERENCE ELEVATION (EXISTING FEATURES)
- 16.12 FINISH GRADE
- TOE OF FILL SLOPE (GRADING BOUNDARY FOR FILL AREAS)
- SD--- STORM DRAINAGE PIPING
- ▣▣▣▣ WATER QUALITY CATCH BASIN



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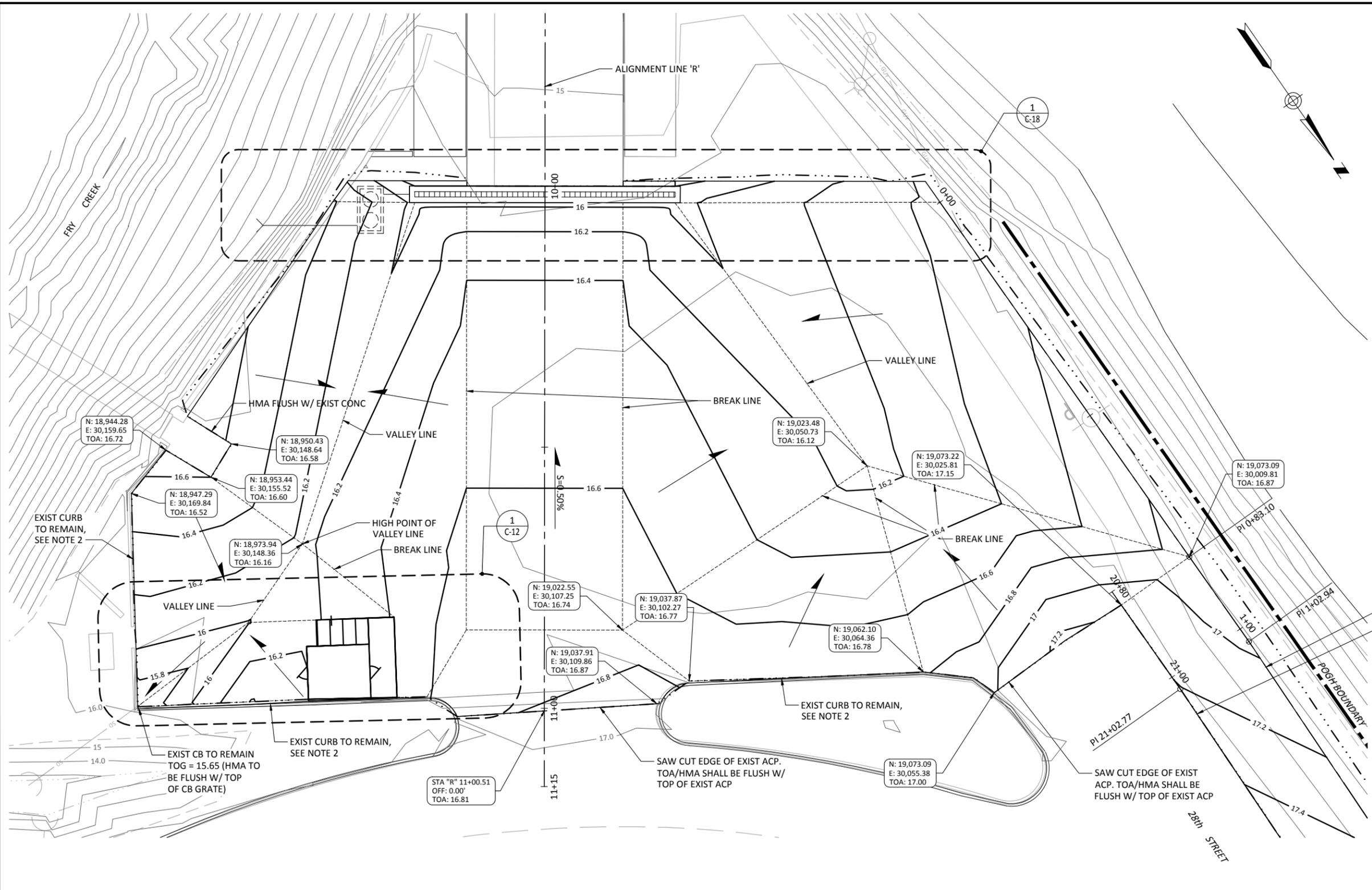
**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

GRADING & DRAINAGE PLAN - SHEET 3

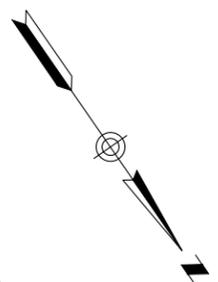
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PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **17 OF 48**

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- NOTES:**
1. CONTRACTOR SHALL HOLD BREAK LINES & SPOT ELEVATIONS SHOWN ON PLAN TO DEVELOP INTENDED GRADING LAYOUT.
 2. TOA SHALL MATCH EXIST GRADE AT EXISTING CURB LINES & BE PLACED UP TO FACE OF EXIST CURB. MIN CURB HEIGHT AFTER PLACEMENT OF HMA SHALL BE 4".



1 ENLARGED GRADING & DRAINAGE PLAN
 C-5-C-8 SCALE: 1"=10'-0"

1" = 10' scale

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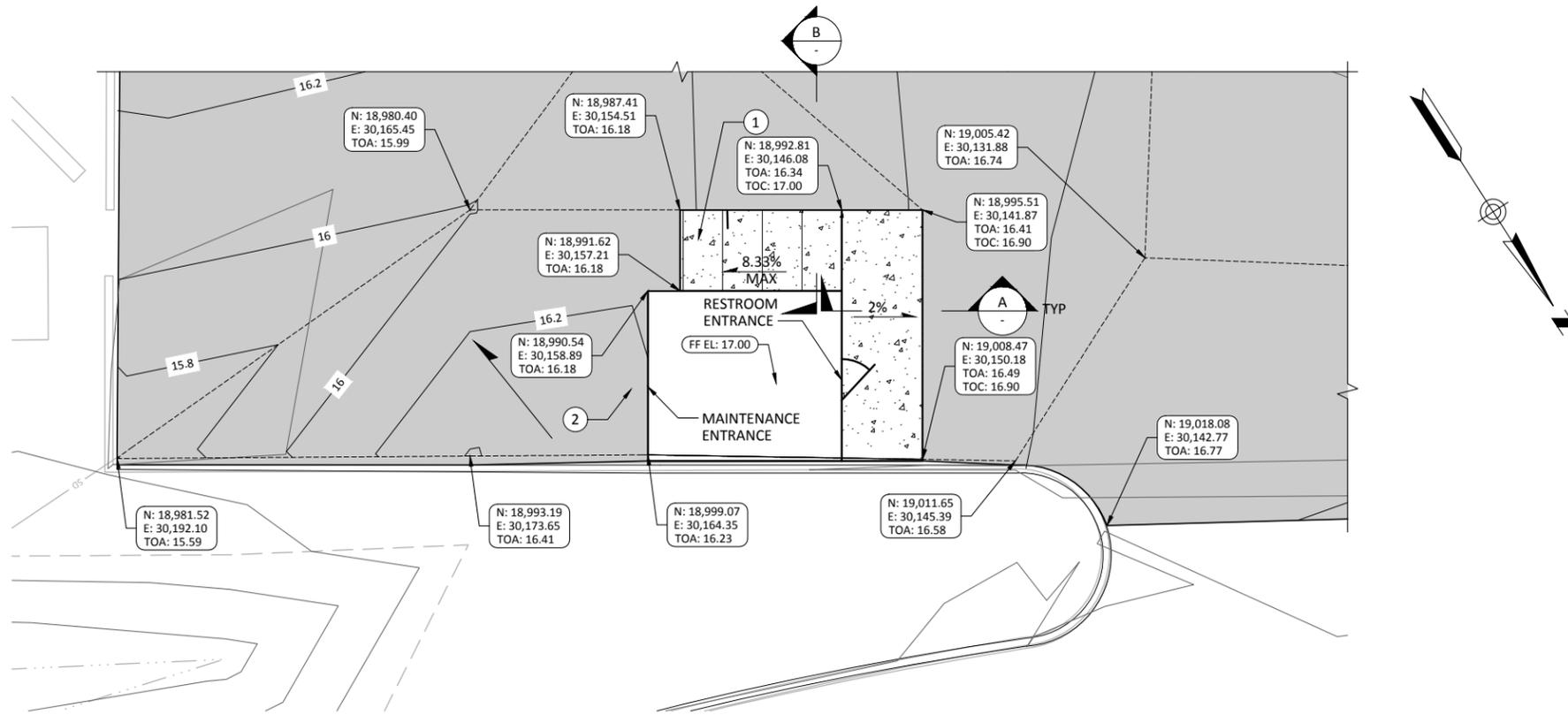
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**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II**

ENLARGED GRADING & DRAINAGE PLAN

DRAWING NO. **C-11**
 PROJECT NO. **FAWAT-12-145**
 DATE: **3/22/17**
 SHEET NO. **18 OF 48**

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NOTES:

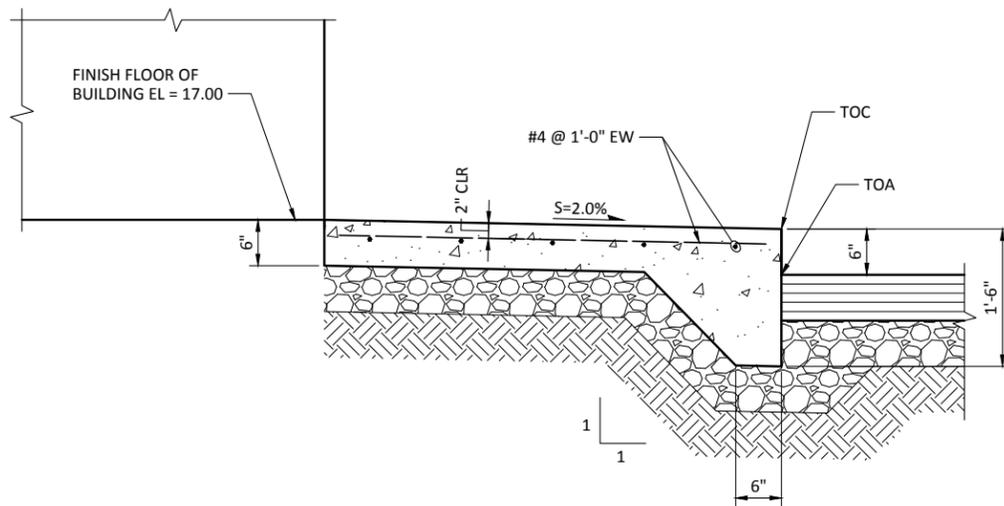
1. INFORMATION ON THIS DWG BASED ON BUILDING SHOWN ON DWG C-25. CONTACT ENGINEER IF BUILDING CHANGES.

KEY NOTES:

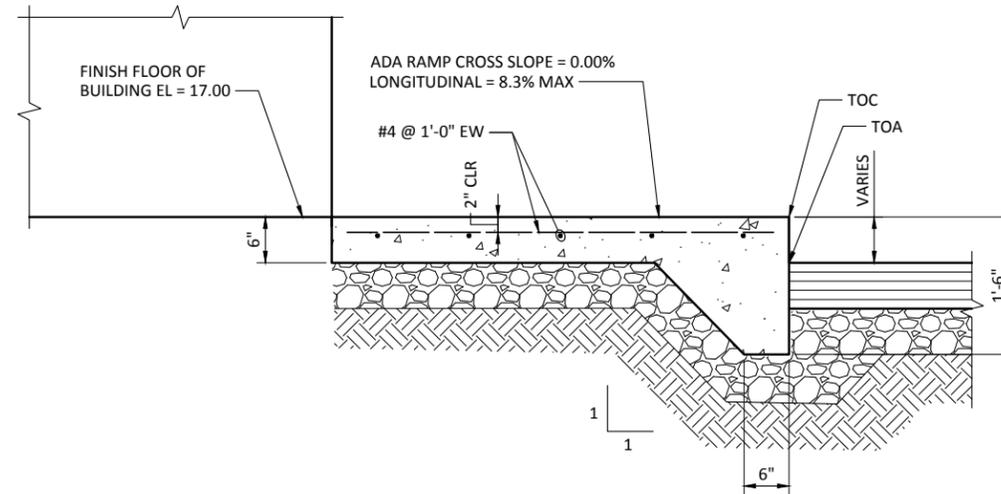
- 1 CONCRETE WALK AROUND BUILDING.
- 2 INCREASE TOA ELEVATION IN A 4'-0" x 4'-0" AREA ADJACENT TO MAINTENANCE ENTRANCE TO 16.50 AND GRADUALLY GRADE AWAY AT REQUIRED SLOPE TO MATCH IN WITH ESTABLISHED GRADING PLAN.

ENLARGED RESTROOM GRADING & DRAINAGE PLAN

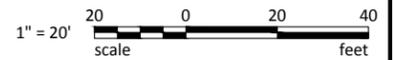
SCALE: 1"=5'-0"



A SECTION
SCALE: NTS



B SECTION
SCALE: NTS



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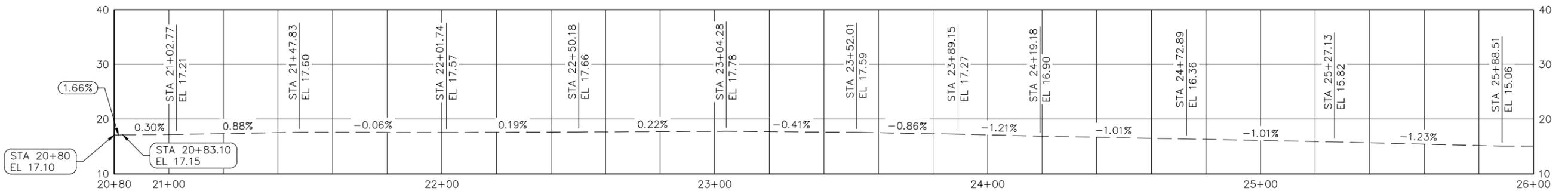
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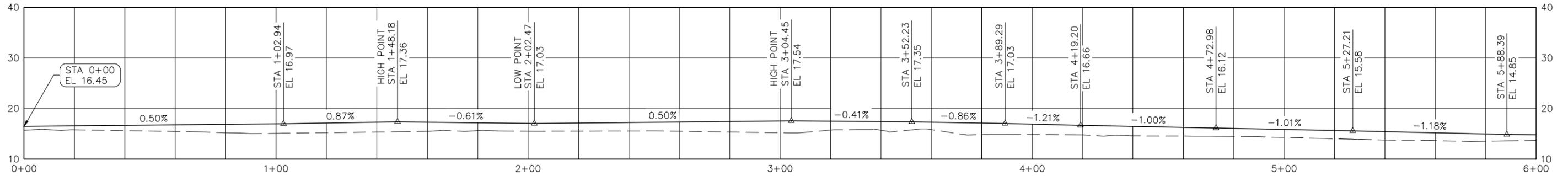
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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
ENLARGED BUILDING GRADING & DRAINAGE PLAN

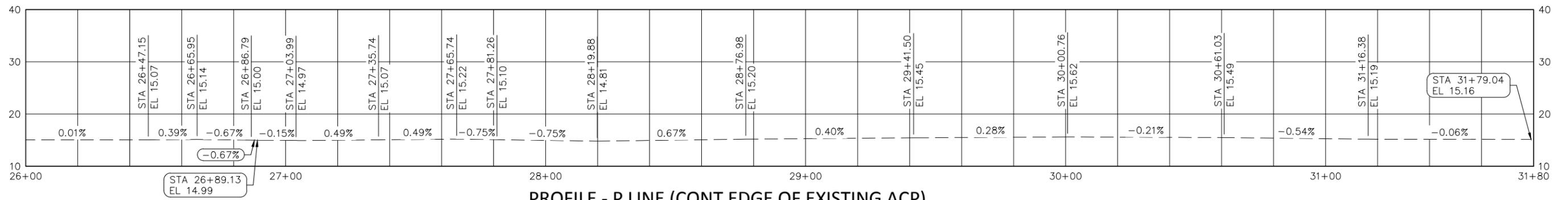
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PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **19 OF 48**



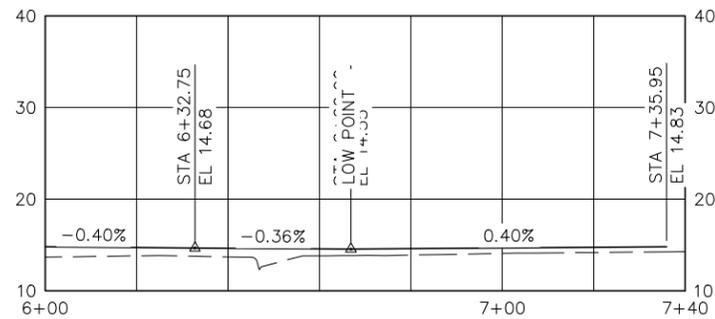
PROFILE - P LINE (EDGE OF EXISTING ACP)



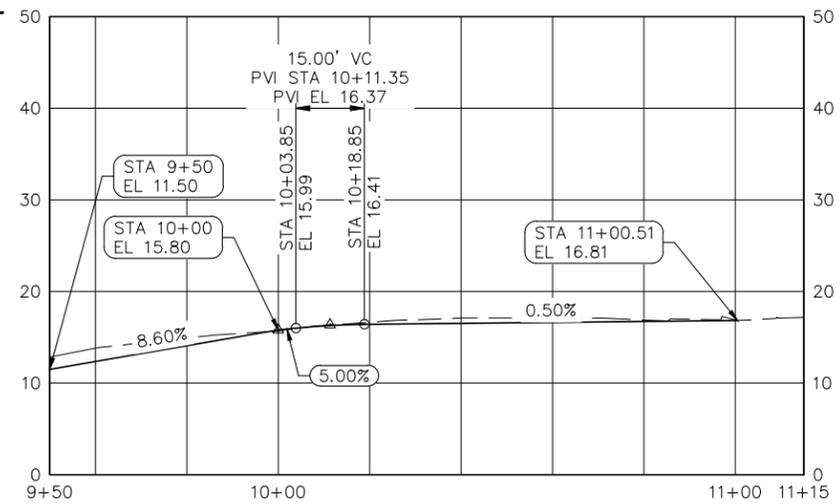
PROFILE - E LINE (EDGE OF HMA PAVING)



PROFILE - P LINE (CONT EDGE OF EXISTING ACP)



PROFILE - E LINE (CONT EDGE OF HMA PAVING)



PROFILE - R LINE

BID DOCUMENTS

MARK	REVISION DESCRIPTION	BY	APP.	DATE

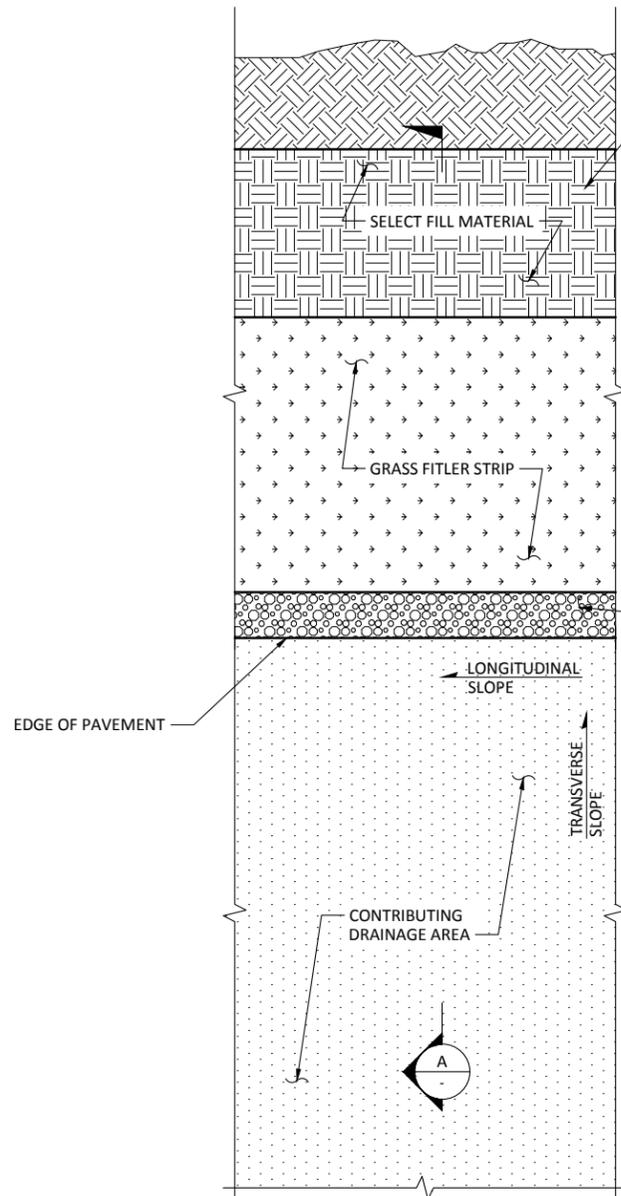
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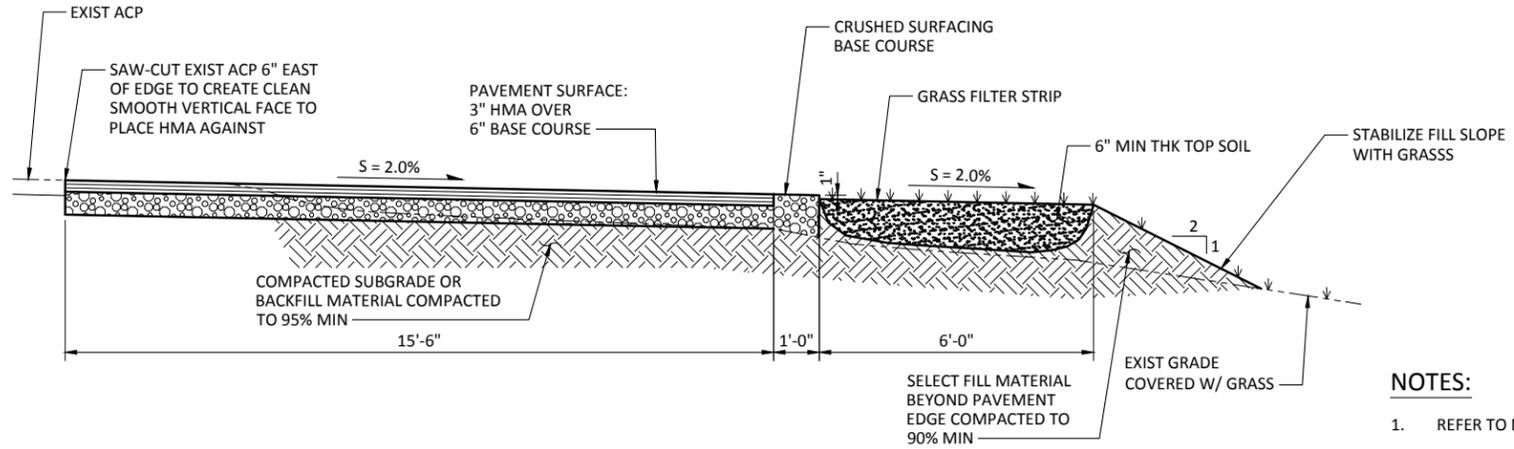
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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
GRADING & DRAINAGE PROFILES & SECTIONS

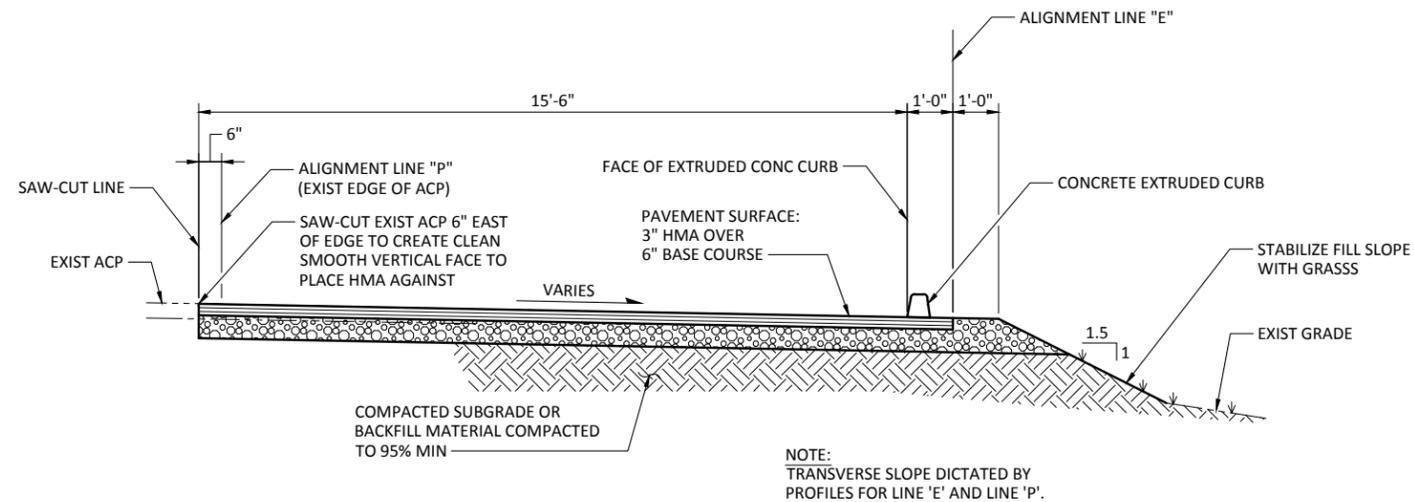
DRAWING NO. **C-13**
PROJECT NO. **FAWAT-12-145**
DATE: **4/11/16**
SHEET NO. **20 OF 48**



1 PLAN VIEW
NTS



A TYPICAL FILTER STRIP DETAIL
C-6 NTS
C-7
C-9
C-10



B TYPICAL SECTION - PAVEMENT EXTENSION W/ CURB
C-5 NTS
C-6
C-8
C-9

NOTES:

- REFER TO NOTE 4 ON DWG C-5.
- FOR SECTIONS 'A' AND 'B', EXCAVATE, OR FILL AND COMPACT AS REQUIRED TO ACHIEVE THE SPECIFIED PAVEMENT SECTION AND REQUIRED GRADES.
- FOR PAVEMENT EXTENSION ALONG 28TH STREET AT NORTH END OF PROJECT, REFER TO SECTION 'A'. FINISH GRADE SHALL BE SLOPED AS SHOWN ON SECTION 'A' FROM EDGE OF EXIST PAVEMENT. FOR PAVEMENT EXTENSION ALONG 28TH AT SOUTH END OF PROJECT, REFER TO SECTION 'B'. FINISH GRADE SHALL BE DEVELOPED BY UNIFORM TRANSVERSE SLOPE BETWEEN E-LINE AND P-LINE PROFILES, WITH PAVEMENT SLOPED AWAY FROM EXIST ROADWAY TO CURB LINE. IF CONTRACTOR DETERMINES ANY LOCATION THAT WILL NOT RESULT IN A SLOPE DOWN TOWARDS THE CURB LINE, STOP WORK AND CONTACT ENGINEER FOR FURTHER DIRECTION.
- SECTION 'B' IS SHOWN WITH A FILL SLOPE OF 1.5:1 (H:V), BUT CONTRACTOR SHALL USE 2:1 (H:V) FILL SLOPE WHERE ADEQUATE SPACE IS AVAILABLE TO CATCH EXISTING GRADE PRIOR TO STEEP SLOPE TO EXIST LARGE DITCH / WATERWAY.

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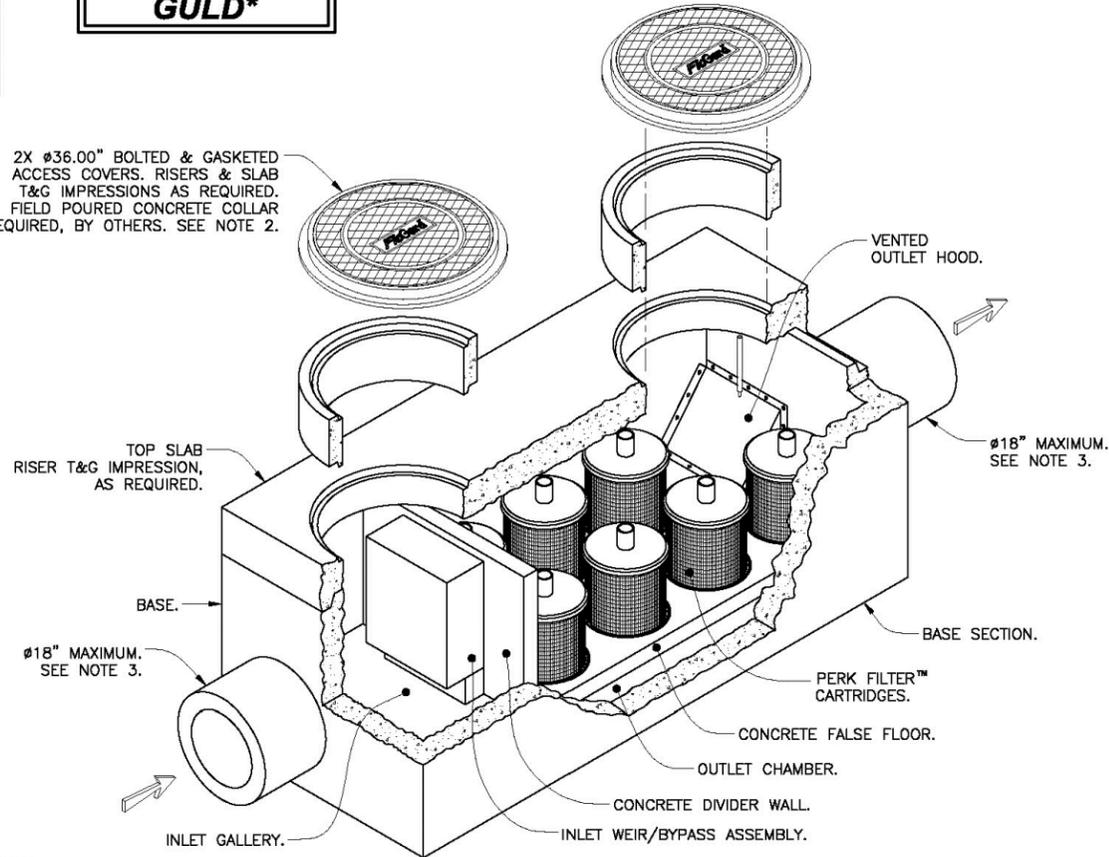
PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II
GRADING & DRAINAGE DETAILS - SHEET 1

DRAWING NO. **C-14**
PROJECT NO. FAWAT-12-145
DATE: 3/22/17
SHEET NO. 21 OF 48

PF-V-4-WA-0001

Washington GULD*

2X #36.00" BOLTED & GASKETED ACCESS COVERS, RISERS & SLAB T&G IMPRESSIONS AS REQUIRED. FIELD POURED CONCRETE COLLAR REQUIRED, BY OTHERS. SEE NOTE 2.



Notes:

1. Precast concrete structure shall be manufactured in accordance with ASTM Designation C857 and C858.
2. Filter system shall be supplied with traffic rated (H20) bolted & gasketed Ø36" circular access covers with risers as required. Shallow applications may require configurations with (H20) bolted & gasketed square/rectangular access hatches. Contact KriStar Enterprises, Inc for engineering assistance. Field poured concrete collars required, by others.
3. Inlet & outlet pipe(s) (Ø 18" maximum) may enter device on all three sides of the inlet & outlet chambers respectively. For pipe sizes greater than Ø 18", contact KriStar Enterprises for engineering assistance.
4. Inlet chamber shall be supplied with drain-down device, designed to remove standing water between storm events.
5. Perk-Filter systems may be supplied with individual or multiple 18" or 12" high Perk-Filter cartridges. Filter cartridge may be stacked to accommodate higher flow rates. Contact KriStar Enterprises for capacities.
6. For depths less than specified minimums contact KriStar Enterprises for engineering assistance.

* Treatment Flow Rates shown conform to Washington State GULD Specifications.

TITLE **FloGard® Perk Filter™**
4' WIDE CONCRETE VAULT
Washington State GULD
THREE TO SEVEN CARTRIDGES / STACKS

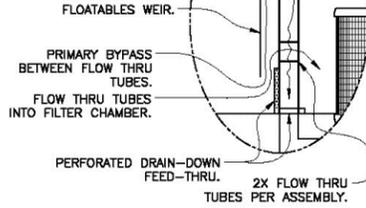


KriStar Enterprises, Inc.

360 Sutton Place, Santa Rosa, CA 95407
Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com

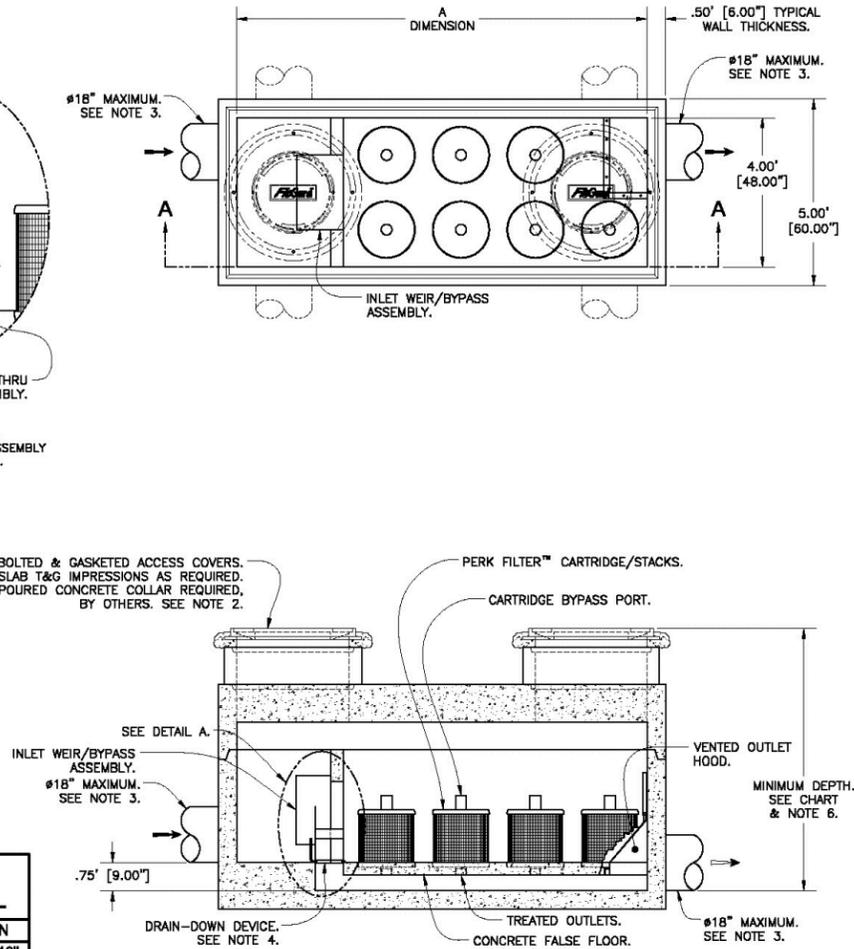
DRAWING NO.	REV	ECO	DATE	SHEET
PF-V-4-WA-0001	C	0108	JPR 11/15/12	JPR 3/2/11 SHEET 1 OF 2

PF-V-4-WA-0001



DETAIL A
INLET WEIR/BYPASS ASSEMBLY & DRAIN-DOWN.
SCALE: NONE

2X #36.00" BOLTED & GASKETED ACCESS COVERS, RISERS & SLAB T&G IMPRESSIONS AS REQUIRED. FIELD POURED CONCRETE COLLAR REQUIRED, BY OTHERS. SEE NOTE 2.



SECTION A-A

Washington GULD*

MINIMUM DEPTH - RIM TO OUTLET INVERT -

CARTRIDGE STACK CONFIGURATION			
12"	18"	12" + 12"	12" + 18"
4.25' [51.00"]	5.00' [60.00"]	5.92' [71.00"]	6.67' [80.00"]

4' VAULT TREATMENT FLOW RATES, TOTAL FLOW CAPACITIES & MAXIMUM HEAD LOSS

CARTRIDGE STACK QUANTITY	A DIMENSION - LENGTH - (ID- FEET)	CARTRIDGE STACK CONFIGURATION							
		12"		18"		12" & 12"		12" & 18"	
		TREATMENT FLOW RATE (GPM / CFS)	TOTAL FLOW CAPACITY (CFS)	TREATMENT FLOW RATE (GPM / CFS)	TOTAL FLOW CAPACITY (CFS)	TREATMENT FLOW RATE (GPM / CFS)	TOTAL FLOW CAPACITY (CFS)	TREATMENT FLOW RATE (GPM / CFS)	TOTAL FLOW CAPACITY (CFS)
3	7	20.4 / 0.045	2.9	30.6 / 0.068	4.3	40.8 / 0.091	5.0	51.0 / 0.114	6.7
4	9	27.2 / 0.061	2.9	40.8 / 0.091	4.4	54.4 / 0.121	5.0	68.0 / 0.152	6.8
5	9	34.0 / 0.076	2.9	51.0 / 0.114	4.4	68.0 / 0.152	5.1	85.0 / 0.190	6.8
6	11	40.8 / 0.091	3.0	61.2 / 0.136	4.5	81.6 / 0.182	5.1	102.0 / 0.227	6.9
7	11	47.6 / 0.106	3.0	71.4 / 0.159	4.5	95.2 / 0.212	5.2	119.0 / 0.265	7.0
MAXIMUM HEAD LOSS		1.7 FEET		2.3 FEET		2.9 FEET		3.5 FEET	

* Treatment Flow Rates shown conform to Washington State GULD Specifications.

TITLE **FloGard® Perk Filter™**
4' WIDE CONCRETE VAULT
Washington State GULD
THREE TO SEVEN CARTRIDGES / STACKS



KriStar Enterprises, Inc.

360 Sutton Place, Santa Rosa, CA 95407
Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com

DRAWING NO.	REV	ECO	DATE	SHEET
PF-V-4-WA-0001	C	0108	JPR 11/15/12	JPR 3/2/11 SHEET 2 OF 2

BID DOCUMENTS

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Federal Way, Washington 98003-2600
(206) 431-2300 Fax: (206) 431-2250



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CHECK BY CSB
PROJ MGR CSB

PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II
GRADING & DRAINAGE DETAILS - SHEET 2

DRAWING NO. **C-15**
PROJECT NO. **FAWAT-12-145**
DATE: **4/11/16**
SHEET NO. **22 OF 48**

PF-CCB-WA-0003

Washington GULD*

CARTRIDGE SIZE	TREATMENT FLOW RATE GPM / CFS	TOTAL FLOW CAPACITY CFS
12.00"	13.6 / 0.030	2.5
18.00"	20.4 / 0.045	2.6
STACKED 12.00" + 12.00"	27.2 / 0.061	2.7
STACKED 18.00" + 12.00"	34 / 0.076	2.7

Labels: 2X TRAFFIC RATED CHECKER PLATE COVER, TRAFFIC RATED INLET GRATE, FloGard®+Plus™ PRE-FILTER, 2X FILTERED DRAIN-DOWN, 2X PERK FILTER™ CARTRIDGE, 2X FLOW THRU TUBES, OUTLET GALLERY, 3X CONCRETE FLOOR, INLET, SEE BELOW & NOTE 4 FOR LOCATION OPTIONS & SPECS., OUTLET, SEE BELOW & NOTE 4 FOR LOCATION OPTIONS & SPECS., TOP SLAB, BASE.

Labels: FLOATABLES WEIR, PRIMARY BYPASS BETWEEN FLOW THRU TUBES, FLOW THRU TUBES INTO FILTER CHAMBER, PERFORATED DRAIN-DOWN FEED-THRU, 2X FLOW THRU TUBES.

Notes:

- Structure shall be pre-cast concrete (4,000 psi min), reinforced with welded wire mesh (4x4-6-6). Special reinforcing may be specified.
- Catch basin/filter system shall be supplied with traffic rated (H20) bicycle-proof grates and checker plate cover. Cast iron grates and/or covers are available upon request.
- All exposed steel components shall have a hot dipped galvanized finish in accordance with ASTM A-123.
- Inlet pipe(s) may enter device on opposite sides of the inlet chamber. Outlet pipe(s) may exit on all four sides. All pipe is Ø 12" maximum. For pipe sizes greater than Ø 12", contact KriStar Enterprises for engineering assistance.
- Inlet chamber shall be supplied with drain-down device, designed to remove standing water between storm events.
- Perk-Filter catch basin/filter device shall be supplied with FloGard PLUS pre-filter device. FloGard PLUS and Perk-Filter cartridge shall be maintained in accordance with manufacturer recommendations.
- Perk-Filter catch basin/filter assembly may be supplied with individual or multiple 18" or 12" high Perk-Filter cartridge. Filter cartridge may be stacked to accommodate higher flow rates.
- For depths less than specified minimum contact KriStar Enterprises for engineering assistance.

* Treatment Flow Rates shown conform to Washington State GULD Specifications.

MINIMUM DEPTHS (SEE NOTE 8)				
CARTRIDGE SIZE	Ø 6.0" OUTLET PIPE (IN INCHES)	Ø 8.0" OUTLET PIPE (IN INCHES)	Ø 10.0" OUTLET PIPE (IN INCHES)	Ø 12.0" OUTLET PIPE (IN INCHES)
12.00"	33	35	37	39
18.00"	40	42	44	46
STACKED 12.00" + 12.00"	50	52	54	56
STACKED 18.00" + 12.00"	57	59	61	63

Labels: INLETS, ABOVE, SEE NOTE 4, 2X TRAFFIC RATED CHECKER PLATE COVER, OUTLETS, BELOW, SEE NOTE 4, 3.00' [36.00"], 2.00' [24.00"] CLEAR OPENING, TRAFFIC RATED INLET GRATE, 2.00' [24.00"] CLEAR OPENINGS, OUTLETS, BELOW, SEE NOTE 4.

Labels: 2X PERK FILTER™ CARTRIDGE, FloGard®+Plus™ PRE-FILTER, 2X CARTRIDGE BYPASS PORT, TOP SLAB, BASE, 2X TREATED OUTLET, 3X CONCRETE FLOOR, 8.00' [96.00"], 9.00' [108.00"], MINIMUM DEPTH, SEE TABULATION & NOTE 8, 6.00", OUTLETS Ø12" MAXIMUM, SEE NOTE 4.

TITLE

FloGard® Perk Filter™ CONCRETE CATCH BASIN

Washington State GULD

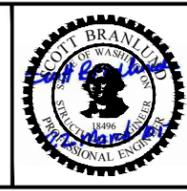
- DOUBLE CARTRIDGE - (BILATERAL CONFIGURATION)

KriStar Enterprises, Inc.
 360 Sutton Place, Santa Rosa, CA 95407
 Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com

DRAWING NO.	REV	ECO	DATE	SHEET
PF-CCB-WA-0003	A	0108	JPR 11/15/12	JPR 3/2/11

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 CHECK BY CSB
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PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II

GRADING & DRAINAGE DETAILS - SHEET 3

DRAWING NO. **C-16**
 PROJECT NO. **FAWAT-12-145**
 DATE: **3/22/17**
 SHEET NO. **23 OF 48**

PF-CCB-WA-0007

Washington GULD*

CARTRIDGE SIZE	TREATMENT FLOW RATE GPM / CFS	TOTAL FLOW CAPACITY CFS
12.00"	27.2 / 0.061	2.6
18.00"	40.8 / 0.091	2.7
STACKED 12.00" + 12.00"	54.4 / 0.121	2.8
STACKED 18.00" + 12.00"	68 / 0.152	2.8

MINIMUM DEPTHS (SEE NOTE 8)				
CARTRIDGE SIZE	Ø 6.0" OUTLET PIPE (IN INCHES)	Ø 8.0" OUTLET PIPE (IN INCHES)	Ø 10.0" OUTLET PIPE (IN INCHES)	Ø 12.0" OUTLET PIPE (IN INCHES)
12.00"	33	35	37	39
18.00"	40	42	44	46
STACKED 12.00" + 12.00"	50	52	54	56
STACKED 18.00" + 12.00"	57	59	61	63

MINIMUM DEPTHS (SEE NOTE 8)				
CARTRIDGE SIZE	Ø 6.0" OUTLET PIPE (IN INCHES)	Ø 8.0" OUTLET PIPE (IN INCHES)	Ø 10.0" OUTLET PIPE (IN INCHES)	Ø 12.0" OUTLET PIPE (IN INCHES)
12.00"	33	35	37	39
18.00"	40	42	44	46
STACKED 12.00" + 12.00"	50	52	54	56
STACKED 18.00" + 12.00"	57	59	61	63

Notes:

- Precast concrete structure shall be manufactured in accordance with ASTM Designation C857 and C858.
- Perk Filter™ Catch basin shall be supplied with traffic rated (H2O) bicycle-proof grates and solid plate cover.
- Inlet pipe(s) may enter device on three sides of the inlet chamber. Outlet pipe(s) may exit on all four sides. All pipe is Ø 12" maximum.
- Inlet chamber shall be supplied with a drain-down device designed to remove standing water between storm events.
- Perk Filter™ catch basin shall be supplied with FloGard® pre-filter device. FloGard® pre-filter and Perk Filter™ cartridge shall be maintained in accordance with manufacturer recommendations.
- For depths less than the specified minimum contact Oldcastle® Stormwater Solutions for engineering assistance.

*** Treatment Flow Rates shown conform to Washington State GULD Specifications.**

Perk Filter™
Concrete Catch Basin
Four Cartridge
Washington State GULD
(Bilateral Configuration)

Oldcastle®
Stormwater Solutions
7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com
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DRAWING NO.	REV	ECO	ECO-0122	DATE	JPR 10/3/14	JPR 3/2/11	SHEET 1 OF 1
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PF-CCB-0004

Washington GULD*

CARTRIDGE SIZE	TREATMENT FLOW RATE GPM / CFS	TOTAL FLOW CAPACITY CFS
12.00"	36 / 0.08	1.3
18.00"	54 / 0.12	1.4
STACKED 12.00" + 12.00"	72 / 0.16	1.5
STACKED 18.00" + 12.00"	90 / 0.20	1.5

MINIMUM DEPTHS (SEE NOTE 8)				
CARTRIDGE SIZE	Ø 6.0" OUTLET PIPE (IN INCHES)	Ø 8.0" OUTLET PIPE (IN INCHES)	Ø 10.0" OUTLET PIPE (IN INCHES)	Ø 12.0" OUTLET PIPE (IN INCHES)
12.00"	33	35	37	39
18.00"	40	42	44	46
STACKED 12.00" + 12.00"	50	52	54	56
STACKED 18.00" + 12.00"	57	59	61	63

MINIMUM DEPTHS (SEE NOTE 8)				
CARTRIDGE SIZE	Ø 6.0" OUTLET PIPE (IN INCHES)	Ø 8.0" OUTLET PIPE (IN INCHES)	Ø 10.0" OUTLET PIPE (IN INCHES)	Ø 12.0" OUTLET PIPE (IN INCHES)
12.00"	33	35	37	39
18.00"	40	42	44	46
STACKED 12.00" + 12.00"	50	52	54	56
STACKED 18.00" + 12.00"	57	59	61	63

Notes:

- Precast concrete structure shall be manufactured in accordance with ASTM Designation C857 and C858.
- Perk Filter™ Catch basin shall be supplied with traffic rated (H2O) bicycle-proof grates and solid plate cover.
- Inlet pipe(s) may enter device on three sides of the inlet chamber. Outlet pipe(s) may exit on all four sides. All pipe is Ø 12" maximum.
- Inlet chamber shall be supplied with a drain-down device designed to remove standing water between storm events.
- Perk Filter™ catch basin shall be supplied with FloGard® pre-filter device. FloGard® pre-filter and Perk Filter™ cartridge shall be maintained in accordance with manufacturer recommendations.
- For depths less than the specified minimum contact Oldcastle® Stormwater Solutions for engineering assistance.

Perk Filter™
Concrete Catch Basin
Triple Cartridge
(End Grate Configuration)

Oldcastle®
Stormwater Solutions
7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com
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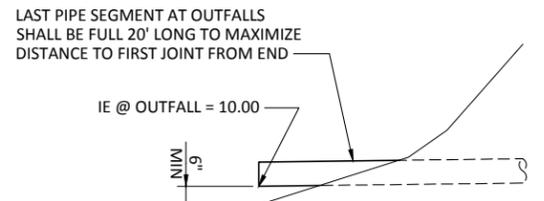
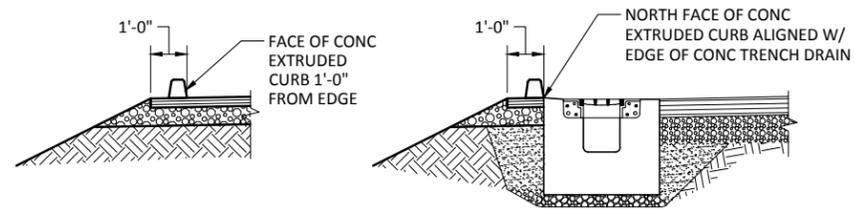
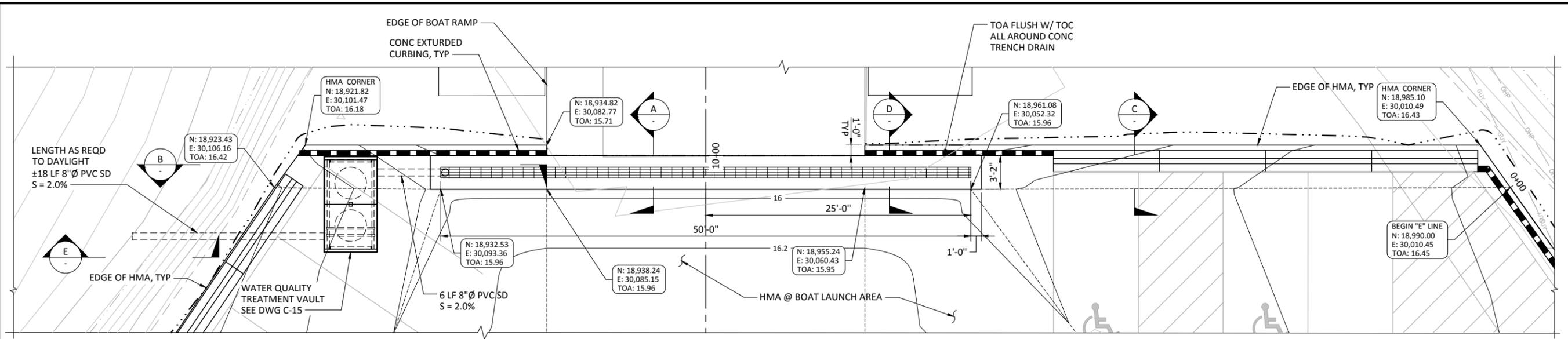
SCOTT BRANTLEY
Professional Engineer
No. 18496
State of Washington

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DESIGN BY	<u>VHN</u>
CHECK BY	<u>CSB</u>
PROJ MGR	<u>CSB</u>

**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

GRADING & DRAINAGE DETAILS - SHEET 4

DRAWING NO.	C-17
PROJECT NO.	FAWAT-12-145
DATE:	3/22/17
SHEET NO.	24 OF 48



C SECTION
SCALE: NTS

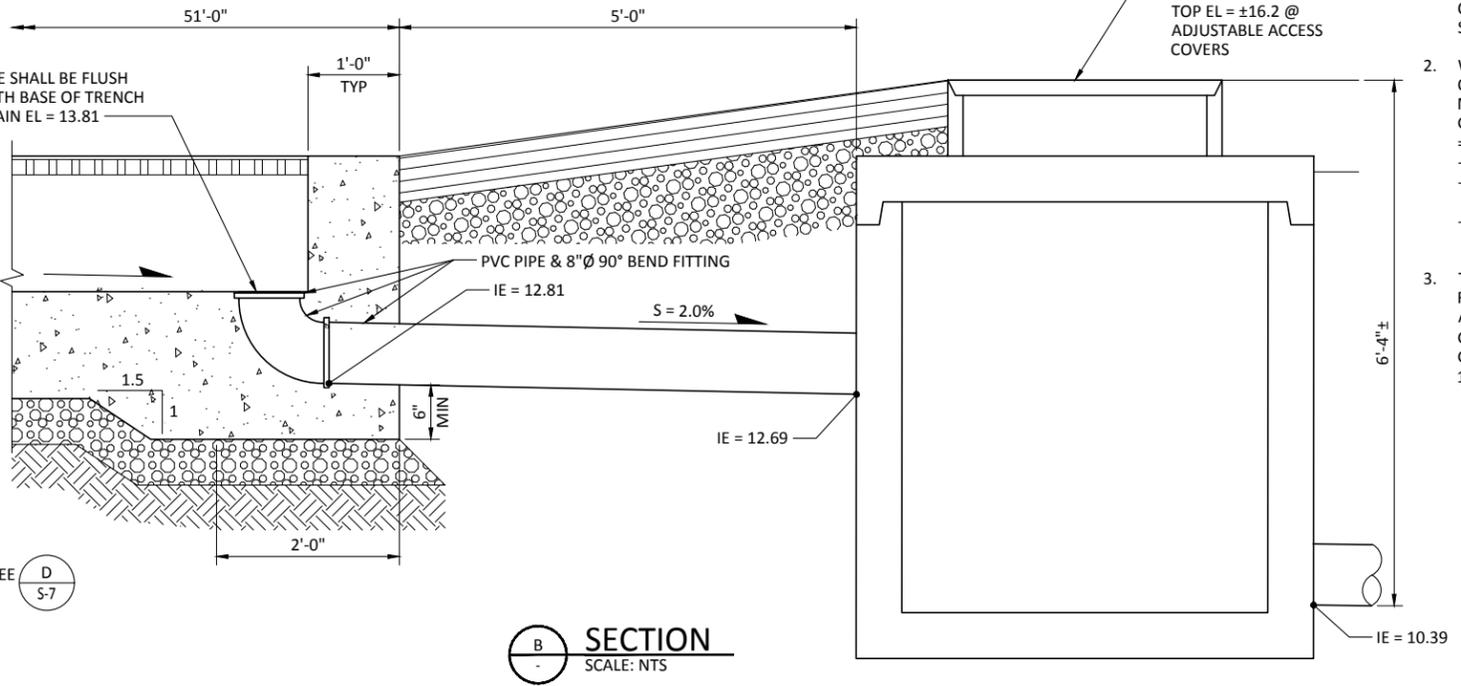
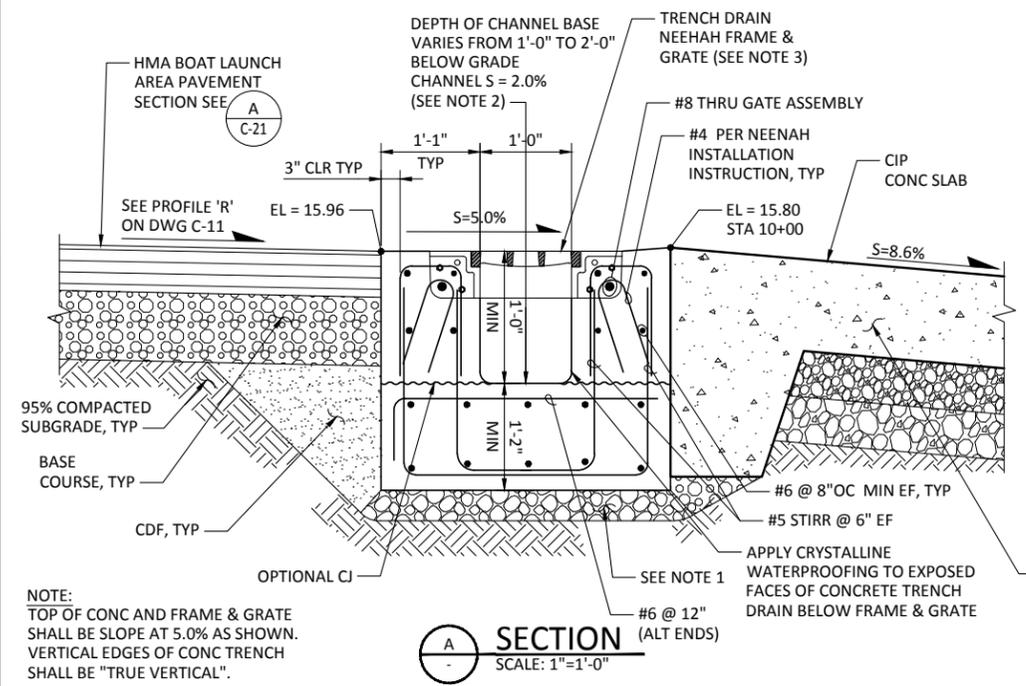
D SECTION
SCALE: NTS

1 ENLARGED TRENCH DRAIN PLAN
SCALE: 1" = 5' scale feet

E SECTION
SCALE: NTS

NOTES FOR SECTIONS A & B:

1. COMPACT SUBGRADE, PLACE 4" MIN OF BASE COURSE TO CREATE SURFACE FOR CIP CONCRETE CONSTRUCTION, AND BACKFILL SIDES WITH CDF AS SHOWN ON SECTION A.
2. WIDTH OF CHANNEL SHALL BE 1'-0" AND MIN DEPTH OF CHANNEL AT WEST SIDE OF ROAD SHALL BE 1'-0", MEASURED FROM DOWNHILL SIDE OF TOP OF GRATING. BOTTOM SLOPE OF TRENCH DRAIN SHALL = 2.0%
 - LENGTH OF TRENCH DRAIN, L = 50'-0"
 - BOTTOM OF TRENCH CHANNEL (WEST END): EL = 14.81
 - BOTTOM OF TRENCH CHANNEL (EAST END): EL = 13.81
3. TRENCH DRAIN FRAME AND GRATE: NEENAM R4993-DAB, TYPE T FRAME AND TYPE A OR C GRATE. AIRPORT RATED, BOLTED DOWN TOP OF FRAME AND GRATE SHALL BE RECESSED 1/2-INCH FROM 5% GRADE LINE PROJECTED FROM EL = 15.80 @ STA 10+00 TO EL = 15.96 @ STA 10+03.17



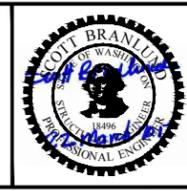
A SECTION
SCALE: 1"=1'-0"

B SECTION
SCALE: NTS

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MARK	REVISION DESCRIPTION	BY	APP.	DATE

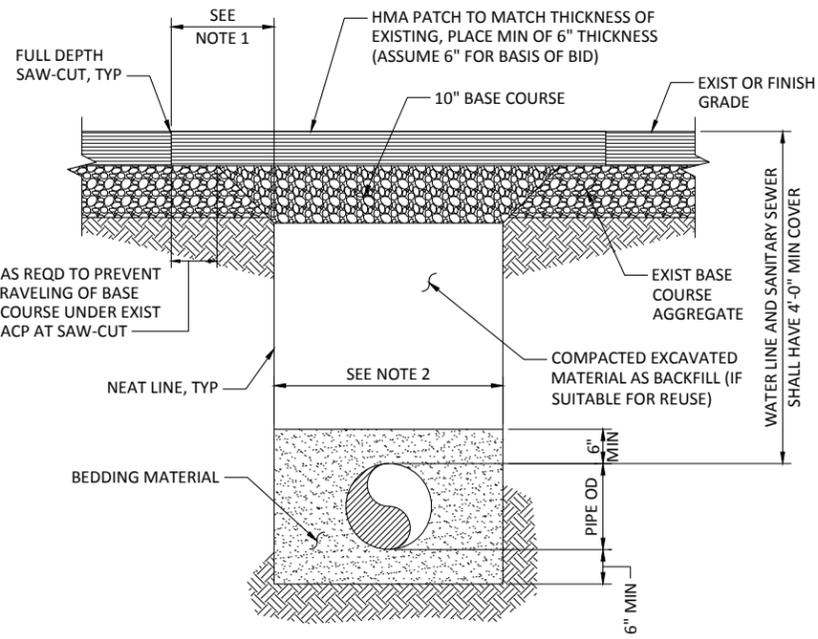
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**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II**
 GRADING & DRAINAGE DETAILS - SHEET 5

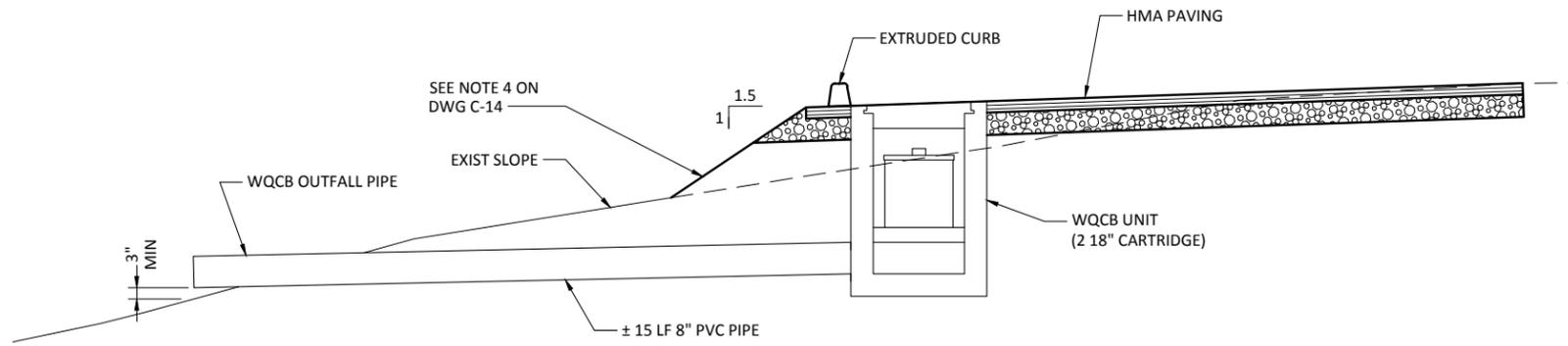
DRAWING NO. **C-18**
 PROJECT NO. **FAWAT-12-145**
 DATE: **3/22/17**
 SHEET NO. **25 OF 48**



1 **DETAIL - TYP TRENCH**
SCALE: 3/4"=1'-0"

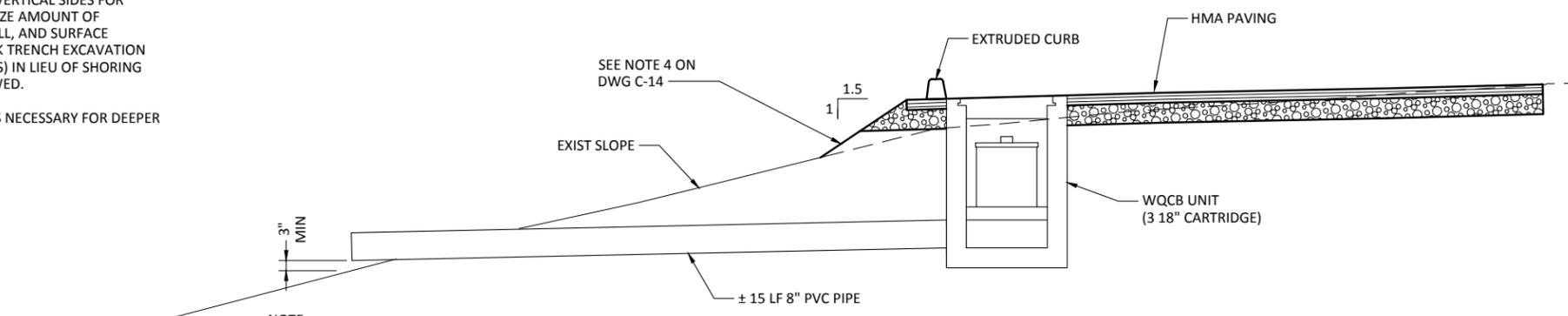
NOTES FOR PIPE TRENCH DETAIL

1. CONTRACTOR SHALL DETERMINE LOCATION OF SAW-CUTS (WIDTH OF EXIST PAVEMENT OR CONC REMOVAL) FOR PIPE TRENCH SUCH THAT NO RAVELING OF EXISTING BASE COURSE AGGREGATE OCCURS BELOW EXIST PAVEMENT OR CONC AT SAW-CUT LINE. IF RAVELING OF EXIST BASE COURSE DOES OCCUR UNDER PAVEMENT OR CONC, CONTRACTOR SHALL MAKE ANOTHER SAW-CUT FURTHER BACK TO ACHIEVE A SUPPORTED EDGE OF PAVEMENT OR CONC AT NO ADDITIONAL COST. APPLY TACK COAT TO VERTICAL FACES PRIOR TO PLACING HMA PATCH.
2. TRENCH WIDTH FOR WATER PIPE SHALL BE 2'-6". TRENCH WIDTH FOR SS AND SD PIPES 15" DIA AND SMALLER SHALL BE 3'-4".
3. PIPE MARKER TAPE NOT SHOWN, BUT SHALL BE PLACED AS DIRECTED IN SPECIFICATIONS.
4. TRENCH SAFETY SYSTEMS (SHORING) SHALL BE USED AS APPLICABLE AND AS DESCRIBED BY OSHA TO MAINTAIN VERTICAL SIDES FOR TRENCH AND MINIMIZE AMOUNT OF EXCAVATION, BACKFILL, AND SURFACE REPAIR. LAYING BACK TRENCH EXCAVATION (FLATTER SIDE SLOPES) IN LIEU OF SHORING SHALL NOT BE ALLOWED.
5. DEWATER TRENCH AS NECESSARY FOR DEEPER EXCAVATIONS.



NOTE:
CONSTRUCT 1'-0" THK x 4'-0" WIDE x 8'-0" LONG BED OF QUARRY SPALLS AT OUTFALL LOCATION. TOP OF QUARRY SPALLS SHALL BE FLUSH WITH TOP OF EXIST GRADE. UPHILL SIDE OF QUARRY SPALL BED SHALL BE LOCATED WHERE PIPE INVERT DAYLIGHTS.

A **SECTION - E-LINE STA 2+02**
SCALE: 1/2"=1'-0"



NOTE:
CONSTRUCT 1'-0" THK x 4'-0" WIDE x 8'-0" LONG BED OF QUARRY SPALLS AT OUTFALL LOCATION. TOP OF QUARRY SPALLS SHALL BE FLUSH WITH TOP OF EXIST GRADE. UPHILL SIDE OF QUARRY SPALL BED SHALL BE LOCATED WHERE PIPE INVERT DAYLIGHTS.

B **SECTION - E-LINE STA 5+42**
SCALE: 1/2"=1'-0"

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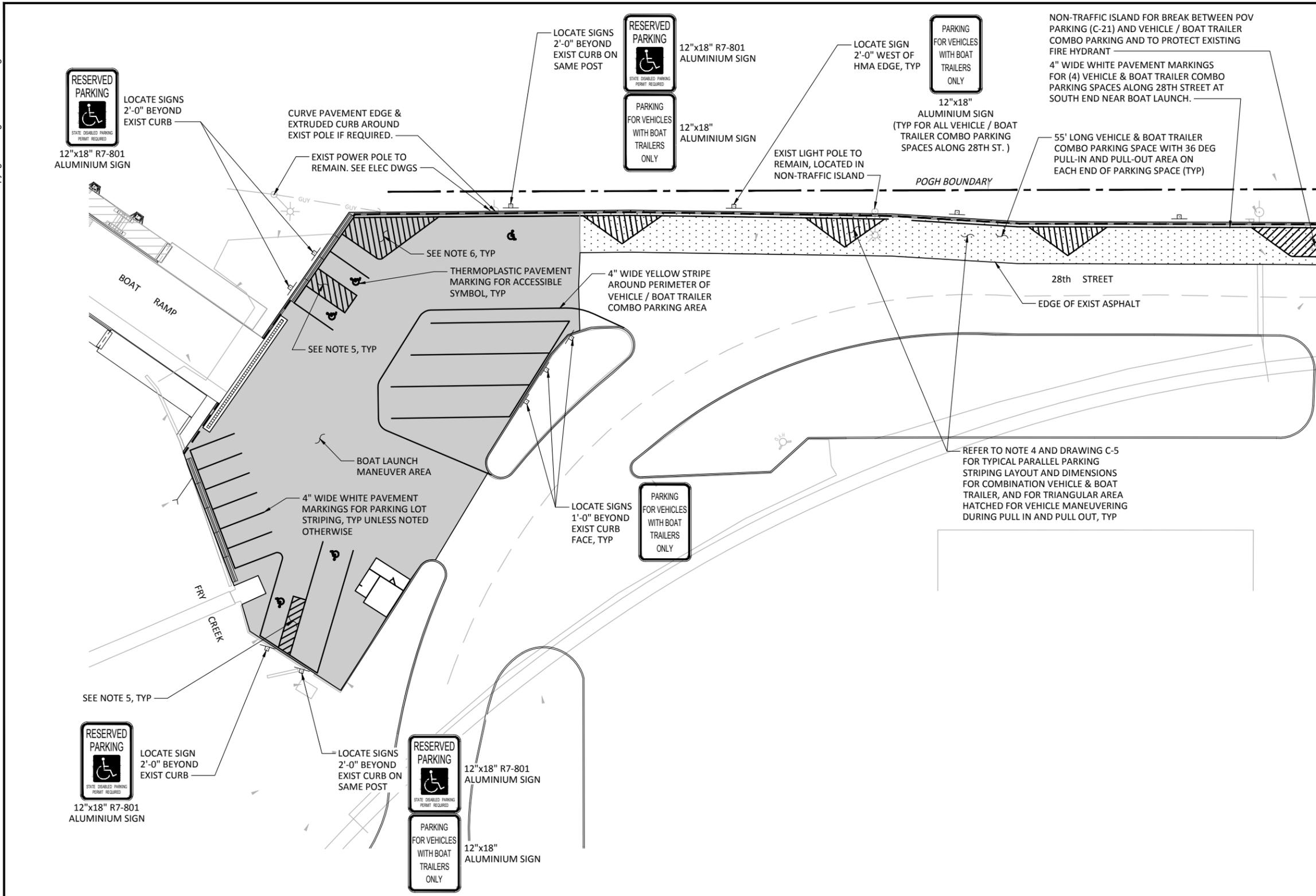
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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

GRADING & DRAINAGE DETAILS - SHEET 6

DRAWING NO. **C-19**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **26 OF 48**

BID DOCUMENTS



- NOTES:**
1. QUANTITIES IN LEGEND REPRESENT TOTAL PROJECT QUANTITIES.
 2. FOR LOCATION OF STRIPING, SEE DWG C-5 AND ENLARGED PLAN ON C-23.
 3. WHERE CONCRETE CURB IS SHOWN, INSIDE FACE / GUTTER LINE SHALL BE LOCATED 1'-0" FROM PAVEMENT EDGE.
 4. HATCH PATTERN STRIPING USED IN TRIANGULAR SHAPED MANEUVER AREAS BETWEEN VEHICLE/BOAT TRAILER COMBO PARKING SPACES SHALL BE ANGLED AT 45 DEGREES AS SHOWN ON PLAN AND BE 4" WIDE YELLOW PAVEMENT MARKINGS SPACED 2'-0" APART.
 5. HATCH PATTERN STRIPING USED ADJACENT TO ACCESSIBLE PARKING SPACES SHALL BE ANGLED AT 45 DEGREES AS SHOWN ON PLAN AND BE 4" WIDE YELLOW PAVEMENT MARKINGS SPACED 2'-0" APART.
 6. ALL OTHER AREAS SHOWN WITH HATCHED PATTERN STRIPING SHALL BE 4" WIDE YELLOW PAVEMENT MARKINGS SPACED 2'-0" APART.

LEGEND:

- 3" HMA PAVING:
ALONG 28th ST: 12,910 SF
NEAR HENDERSON: 26,540 SF, SEE **A** C-23
- 6" HMA PAVING (15,870 SF), SEE **B** C-23
- CONC EXTRUDED CURB (613' LF)

MATCH LINE SEE DWG C-21

PAVING & STRIPING PLAN
SCALE: 1"=20'-0"



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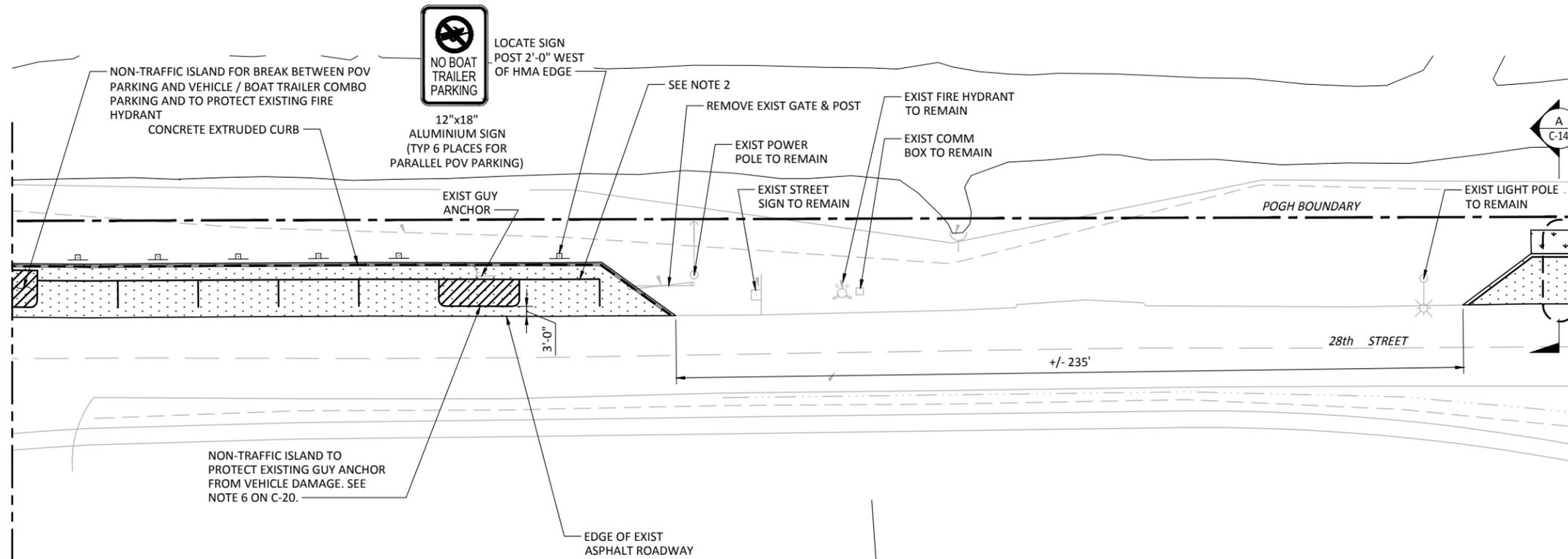
**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

PAVING & STRIPING PLAN - SHEET 1

DRAWING NO. **C-20**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **27 OF 48**

MATCH LINE SEE DWG C-20

MATCH LINE SEE DWG C-22



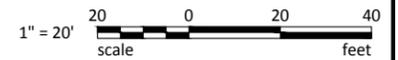
NOTES:

1. FOR LOCATION OF STRIPING, SEE LAYOUT DWG C-6.
2. 4" WIDE WHITE PAVEMENT MARKINGS FOR (6) 24' X 8' POV PARKING SPACES LOCATED 4'-0" EAST OF EAST SIDE OF EXTRUDED CURB LINE.
3. QUANTITIES IN LEGEND REPRESENT TOTAL PROJECT QUANTITIES.

LEGEND:

- 3" HMA PAVING:
ALONG 28th ST: 12,910 SF
NEAR HENDERSON: 26,540 SF, SEE A C-23
- GRASSY FILTER STRIP
- CONC EXTRUDED CURB (613' LF)

PAVING & STRIPING PLAN
SCALE: 1"=20'-0"



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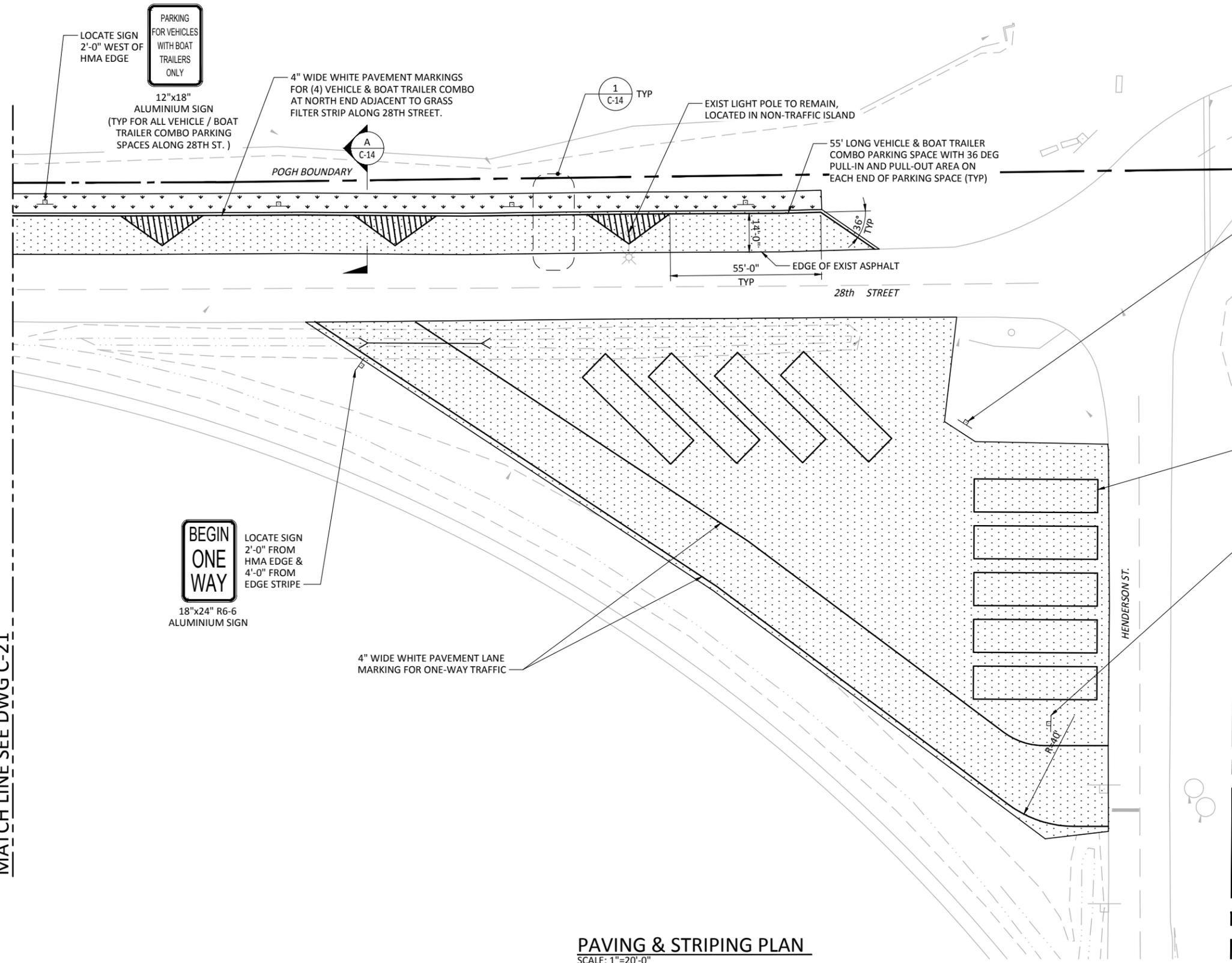


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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
PAVING & STRIPING PLAN - SHEET 2

DRAWING NO. **C-21**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **28 OF 48**

MATCH LINE SEE DWG C-21



- NOTES:**
- FOR LOCATION OF STRIPING, SEE LAYOUT DWG C-7
 - QUANTITIES IN LEGEND REPRESENT TOTAL PROJECT QUANTITIES.

LOCATE SIGN FOR VEHICLES WITH BOAT TRAILERS ONLY
4'-0" BEYOND HMA EDGE

12"x18" ALUMINIUM SIGN

LOCATE SIGN 8'-0" FROM EDGE STRIPE

ONE WAY DO NOT ENTER
18"x24" ALUMINIUM SIGN

LEGEND:

3" HMA PAVING:
ALONG 28th ST: 12,910 SF
NEAR HENDERSON: 26,540 SF, SEE A C-23

GRASSY FILTER STRIP

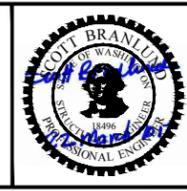
PAVING & STRIPING PLAN
SCALE: 1"=20'-0"



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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

PAVING & STRIPING PLAN - SHEET 3

DRAWING NO. **C-22**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **29 OF 48**

NOTES:

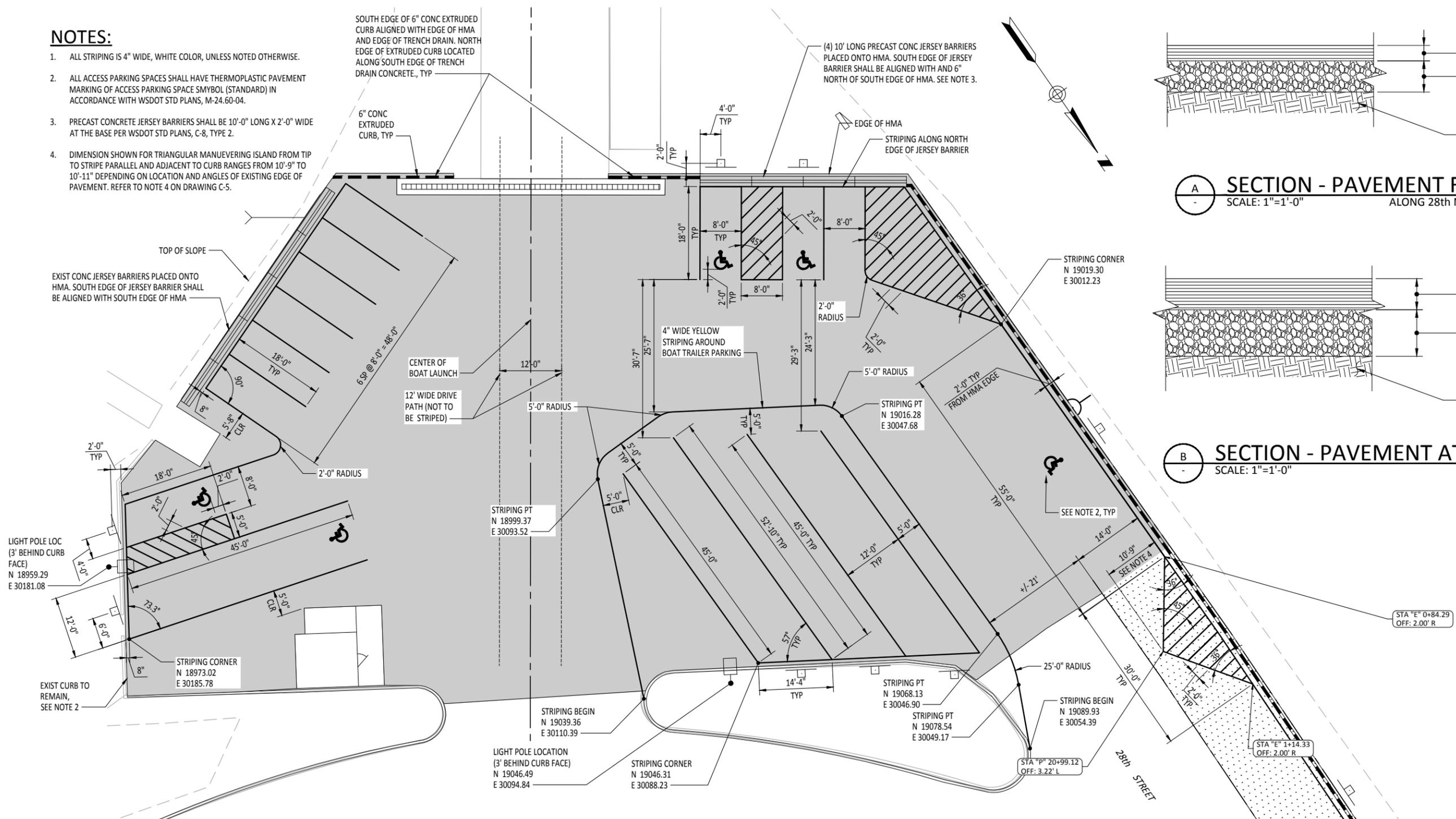
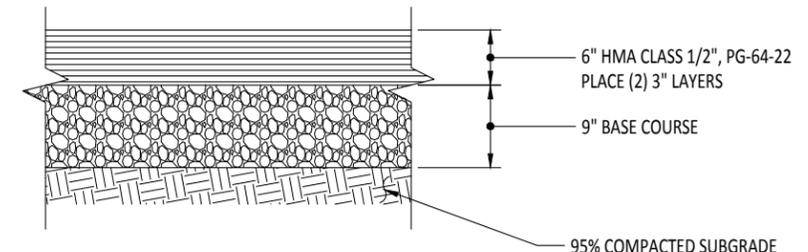
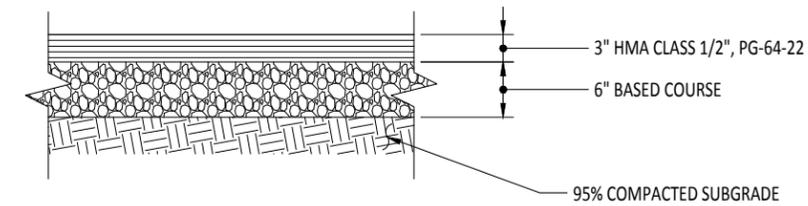
- ALL STRIPING IS 4" WIDE, WHITE COLOR, UNLESS NOTED OTHERWISE.
- ALL ACCESS PARKING SPACES SHALL HAVE THERMOPLASTIC PAVEMENT MARKING OF ACCESS PARKING SPACE SYMBOL (STANDARD) IN ACCORDANCE WITH WSDOT STD PLANS, M-24.60-04.
- PRECAST CONCRETE JERSEY BARRIERS SHALL BE 10'-0" LONG X 2'-0" WIDE AT THE BASE PER WSDOT STD PLANS, C-8, TYPE 2.
- DIMENSION SHOWN FOR TRIANGULAR MANUEVERING ISLAND FROM TIP TO STRIPE PARALLEL AND ADJACENT TO CURB RANGES FROM 10'-9" TO 10'-11" DEPENDING ON LOCATION AND ANGLES OF EXISTING EDGE OF PAVEMENT. REFER TO NOTE 4 ON DRAWING C-5.

SOUTH EDGE OF 6" CONC EXTRUDED CURB ALIGNED WITH EDGE OF HMA AND EDGE OF TRENCH DRAIN. NORTH EDGE OF EXTRUDED CURB LOCATED ALONG SOUTH EDGE OF TRENCH DRAIN CONCRETE, TYP

6" CONC EXTRUDED CURB, TYP

(4) 10' LONG PRECAST CONC JERSEY BARRIERS PLACED ONTO HMA. SOUTH EDGE OF JERSEY BARRIER SHALL BE ALIGNED WITH AND 6" NORTH OF SOUTH EDGE OF HMA. SEE NOTE 3.

EDGE OF HMA
STRIPING ALONG NORTH EDGE OF JERSEY BARRIER



LEGEND

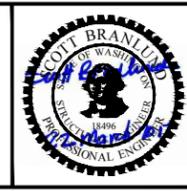
- HMA NEAR BOAT LAUNCH (SEE SECTION 'B' ABOVE)
- HMA FOR PARKING ALONG 28th ST AND NEAR HENDERSON ST. (SEE SECTION 'A' ABOVE)



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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

PAVING & STRIPING DETAILS

DRAWING NO. **C-23**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **30 OF 48**

FOR REFERENCE ONLY

ITEM	QTY	UNIT	REV.
ANCHOR NAIL 1/4x3/4	18		
3068 DOOR ASSEMBLY	2		
SPRING HINGE 4.5x4.5	6		

REV.	DESCRIPTION	DATE	BY
03-28-09	PC-02104		
03-28-09	PC-02104		

CXT Precast Products
 PROJECT FILE: OZARK 1
 CXT STANDARD BUILDING

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Building Elevations

DWG NO. OZ 1-02 SHEET REV.

FOR REFERENCE ONLY

ITEM	QTY	UNIT	REV.
ONE WAY OVAL 6x1 1/4	2		
ANCHOR LEAD 6-6x1	2		
PREDRILL 1/4\"	2		

REV.	DESCRIPTION	DATE	BY
03-28-09	PC-02104		
03-28-09	PC-02104		

CXT Precast Products
 PROJECT FILE: OZARK 1
 CXT STANDARD BUILDING

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Interior Elevations

DWG NO. OZ 1-03 SHEET REV.

FOR REFERENCE ONLY

REV.	DESCRIPTION	DATE	BY
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03-28-09	PC-02104		

CXT Precast Products
 PROJECT FILE: OZARK 1
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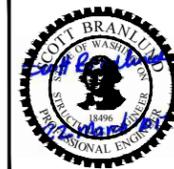
Floor Plan

DWG NO. OZ 1-04 SHEET REV.

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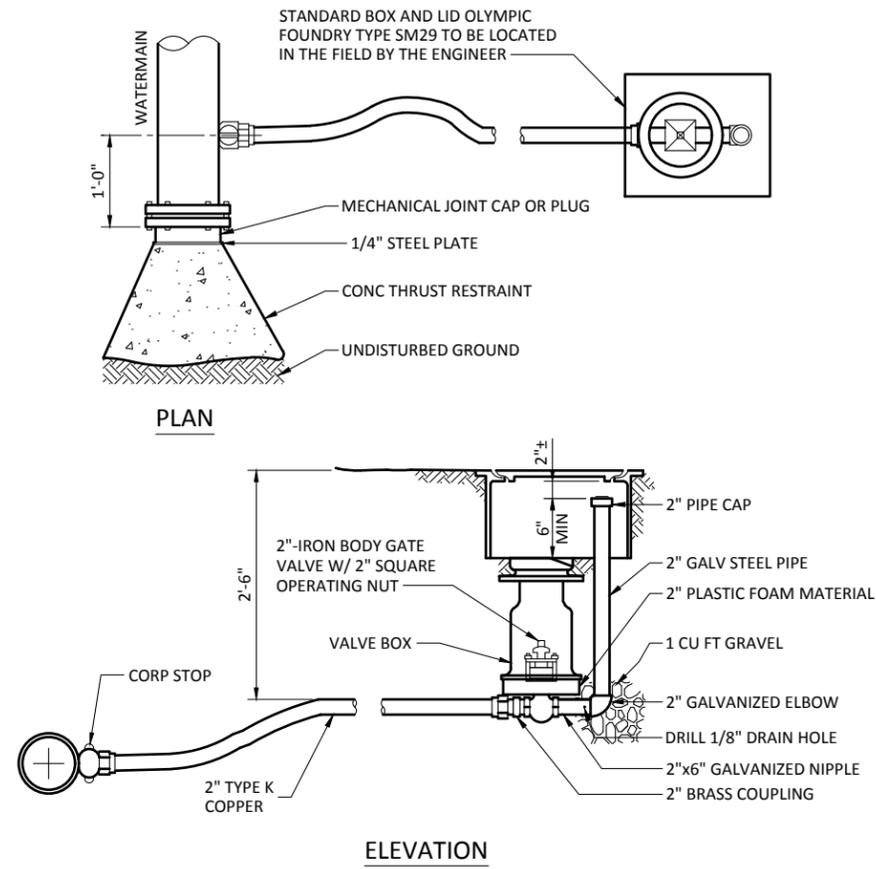
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**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II
 MISCELLANEOUS DETAILS & SECTIONS - SHEET 1
 RESTROOM BUILDING**

DRAWING NO. **C-25**
 PROJECT NO. FAWAT-12-145
 DATE: 3/22/17
 SHEET NO. 32 OF 48



1 **DETAIL - BLOWOFF ASSEMBLY**
SCALE: 1"=1'-0"

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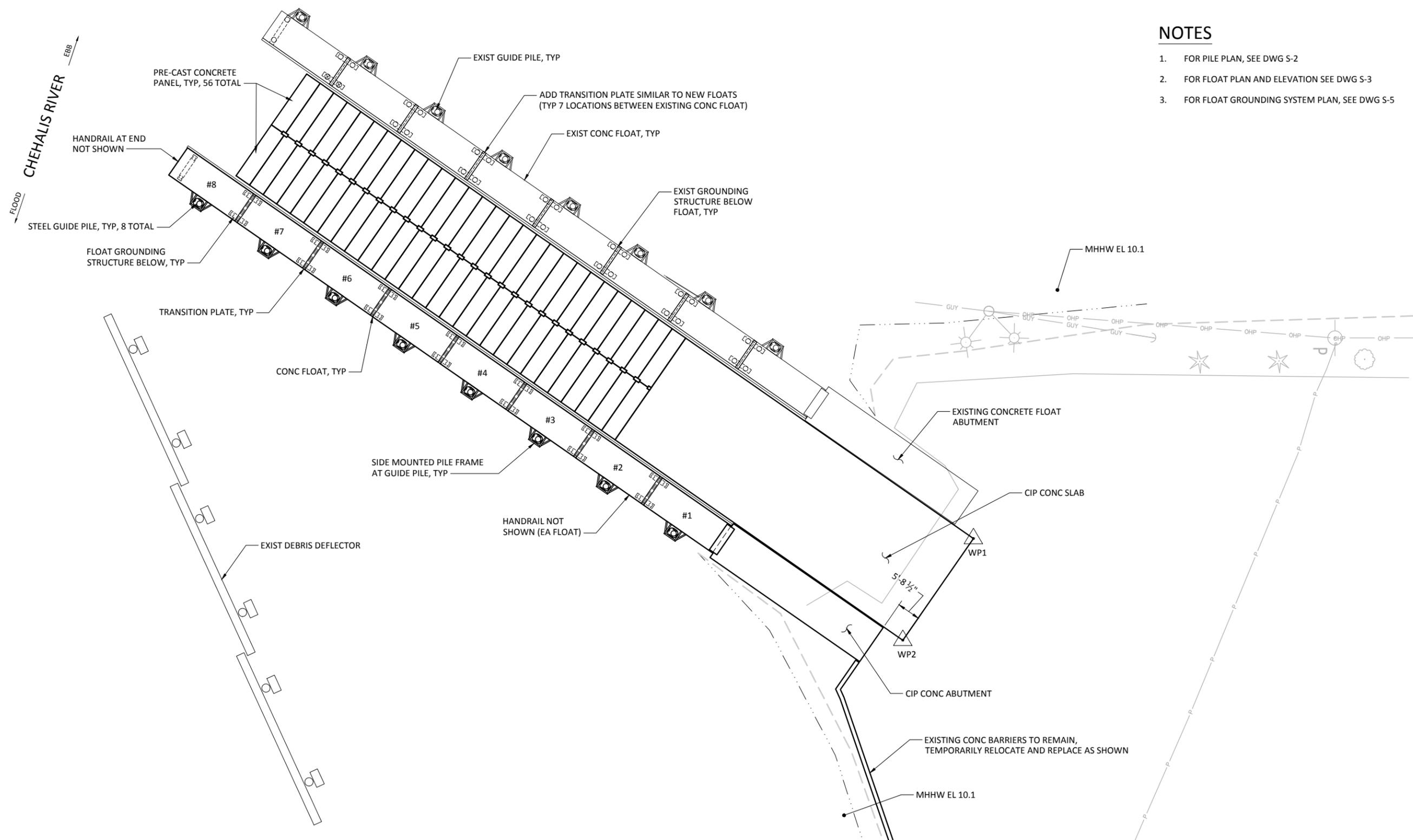
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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
MISCELLANEOUS DETAILS & SECTIONS - SHEET 2
UTILITY DETAILS

DRAWING NO. **C-26**
PROJECT NO. FAWAT-12-145
DATE: 3/22/17
SHEET NO. 33 OF 48



- NOTES**
1. FOR PILE PLAN, SEE DWG S-2
 2. FOR FLOAT PLAN AND ELEVATION SEE DWG S-3
 3. FOR FLOAT GROUNDING SYSTEM PLAN, SEE DWG S-5

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**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II
 MARINE SITE PLAN**

DRAWING NO. **S-1**
 PROJECT NO. FAWAT-12-145
 DATE: 3/22/17
 SHEET NO. 34 OF 48

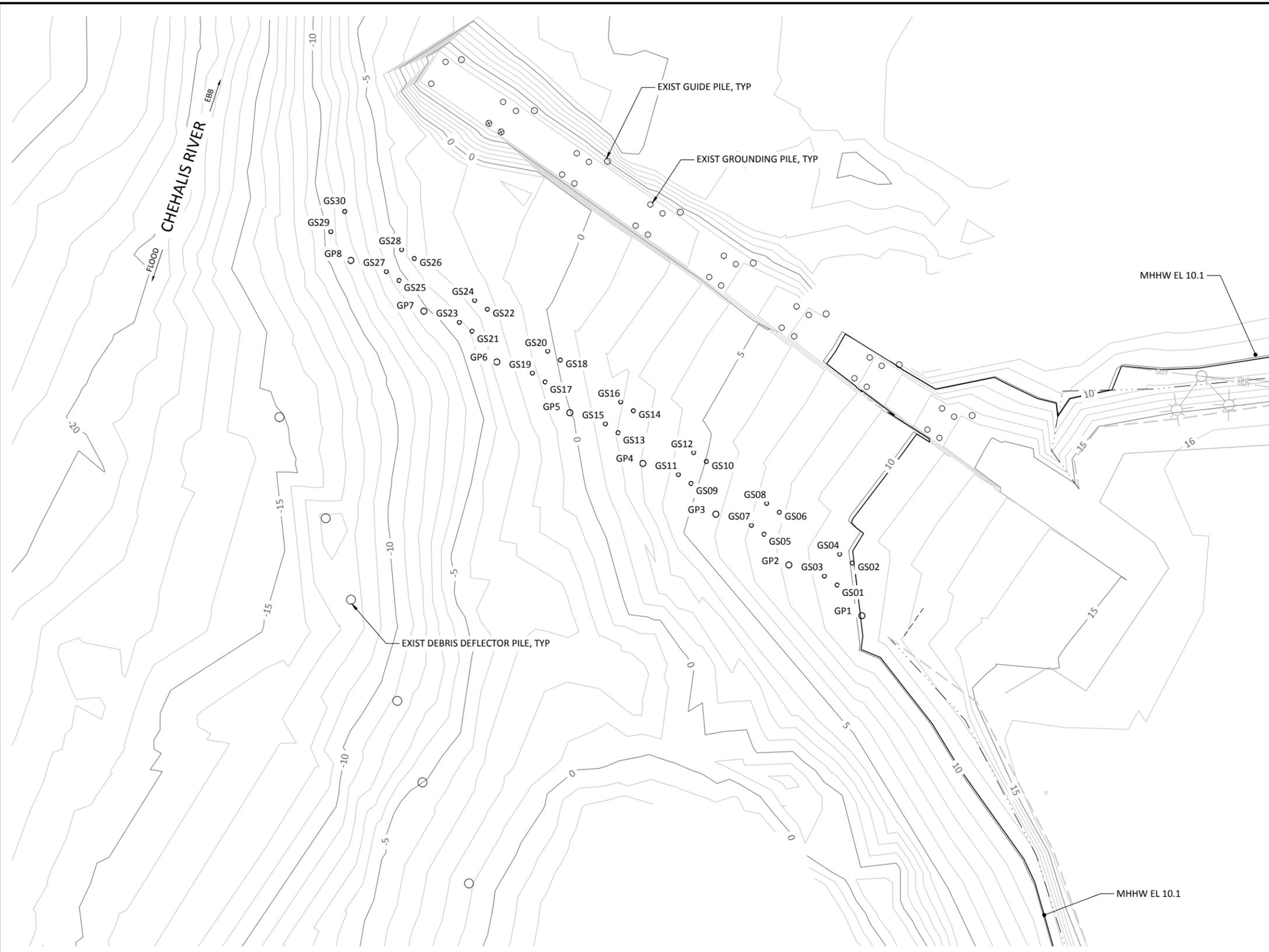


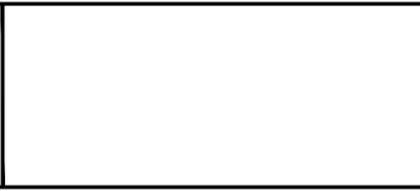
TABLE FOR STEEL PIPE PILES						
PILE	TYPE	SIZE	NORTHING	EASTING	CUT-OFF ELEV	MIN TIP ELEV
GP1	STEEL PIPE	16" x 5/8"	30057.47	18880.06	20	-28
GP2	STEEL PIPE	16" x 5/8"	30046.07	18863.63	20	-29.75
GP3	STEEL PIPE	16" x 5/8"	30034.67	18847.20	20	-32.25
GP4	STEEL PIPE	16" x 5/8"	30023.27	18830.76	20	-34
GP5	STEEL PIPE	16" x 5/8"	30011.87	18814.33	20	-38
GP6	STEEL PIPE	16" x 5/8"	30000.47	18797.90	20	-34.75
GP7	STEEL PIPE	16" x 5/8"	29989.07	18781.47	20	-43
GP8	STEEL PIPE	16" x 5/8"	29977.67	18765.03	20	-46.75
GSS01	STEEL PIPE	10" x 3/8"	30050.57	18874.50	11	-20
GSS02	STEEL PIPE	10" x 3/8"	30045.64	18877.92	11	-20
GSS03	STEEL PIPE	10" x 3/8"	30048.58	18871.63	11.5	-19.5
GSS04	STEEL PIPE	10" x 3/8"	30043.65	18875.05	11.5	-19.5
GSS05	STEEL PIPE	10" x 3/8"	30039.17	18858.07	9.75	-21.25
GSS06	STEEL PIPE	10" x 3/8"	30034.24	18861.49	9.75	-21.25
GSS07	STEEL PIPE	10" x 3/8"	30037.18	18855.19	9.25	-21.75
GSS08	STEEL PIPE	10" x 3/8"	30032.25	18858.61	9.25	-21.75
GSS09	STEEL PIPE	10" x 3/8"	30027.77	18841.64	6	-25
GSS10	STEEL PIPE	10" x 3/8"	30022.84	18845.06	6	-25
GSS11	STEEL PIPE	10" x 3/8"	30025.78	18838.76	5.5	-25.5
GSS12	STEEL PIPE	10" x 3/8"	30020.85	18842.18	5.5	-25.5
GSS13	STEEL PIPE	10" x 3/8"	30016.37	18825.21	3.5	-27.5
GSS14	STEEL PIPE	10" x 3/8"	30011.44	18828.63	3.5	-27.5
GSS15	STEEL PIPE	10" x 3/8"	30014.38	18822.33	3	-28
GSS16	STEEL PIPE	10" x 3/8"	30009.45	18825.75	3	-28
GSS17	STEEL PIPE	10" x 3/8"	30004.97	18808.77	1.25	-29.75
GSS18	STEEL PIPE	10" x 3/8"	30000.04	18812.19	1.25	-29.75
GSS19	STEEL PIPE	10" x 3/8"	30002.98	18805.89	0.25	-30.75
GSS20	STEEL PIPE	10" x 3/8"	29998.05	18809.31	0.25	-30.75
GSS21	STEEL PIPE	10" x 3/8"	29993.57	18792.34	-2.75	-33.75
GSS22	STEEL PIPE	10" x 3/8"	29988.64	18795.76	-2.75	-33.75
GSS23	STEEL PIPE	10" x 3/8"	29991.58	18789.46	-2.25	-33.25
GSS24	STEEL PIPE	10" x 3/8"	29986.65	18792.88	-2.25	-33.25
GSS25	STEEL PIPE	10" x 3/8"	29982.17	18775.91	-3.25	-34.25
GSS26	STEEL PIPE	10" x 3/8"	29977.24	18779.33	-3.25	-34.25
GSS27	STEEL PIPE	10" x 3/8"	29980.18	18773.03	-3	-34
GSS28	STEEL PIPE	10" x 3/8"	29975.25	18776.45	-3	-34
GSS29	STEEL PIPE	10" x 3/8"	29971.20	18760.53	-7	-38
GSS30	STEEL PIPE	10" x 3/8"	29966.68	18763.67	-7	-38



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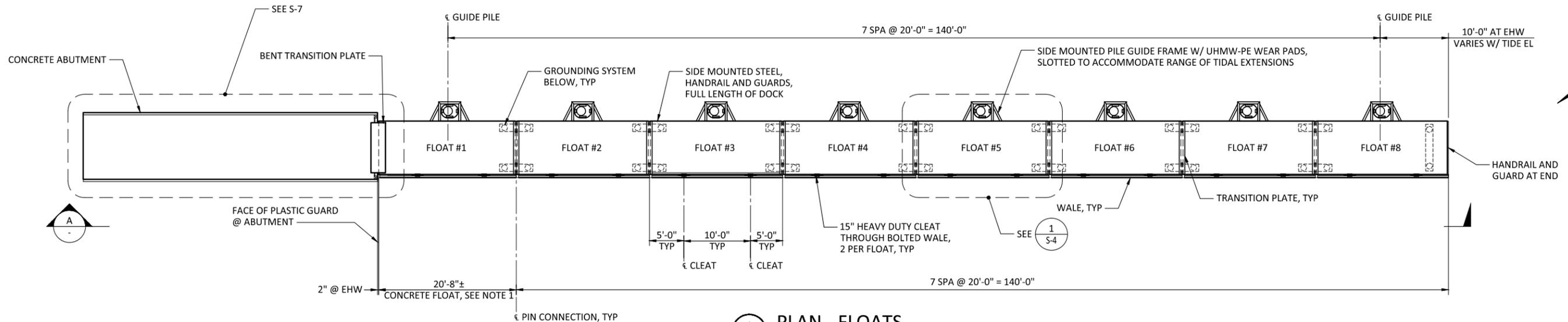


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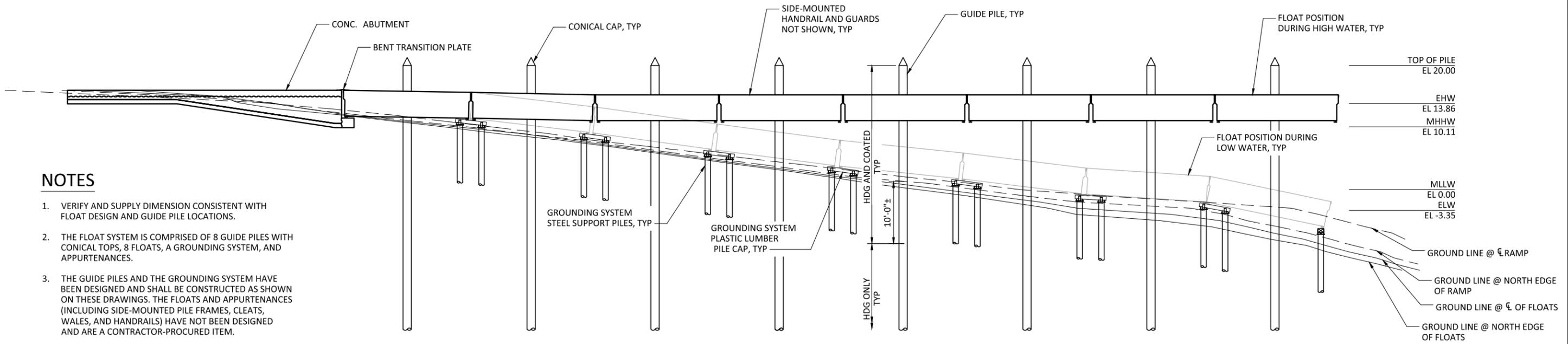
**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II**

MARINE PILE PLAN

DRAWING NO. **S-2**
 PROJECT NO. FAWAT-12-145
 DATE: 3/22/17
 SHEET NO. 35 OF 48



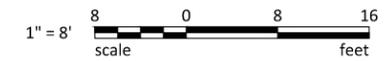
1 PLAN - FLOATS
SCALE: 1"=8'-0"



A ELEVATION
SCALE: 1"=8'-0"

NOTES

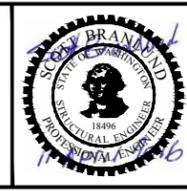
1. VERIFY AND SUPPLY DIMENSION CONSISTENT WITH FLOAT DESIGN AND GUIDE PILE LOCATIONS.
2. THE FLOAT SYSTEM IS COMPRISED OF 8 GUIDE PILES WITH CONICAL TOPS, 8 FLOATS, A GROUNDING SYSTEM, AND APPURTENANCES.
3. THE GUIDE PILES AND THE GROUNDING SYSTEM HAVE BEEN DESIGNED AND SHALL BE CONSTRUCTED AS SHOWN ON THESE DRAWINGS. THE FLOATS AND APPURTENANCES (INCLUDING SIDE-MOUNTED PILE FRAMES, CLEATS, WALES, AND HANDRAILS) HAVE NOT BEEN DESIGNED AND ARE A CONTRACTOR-PROCURED ITEM.
4. DESIGN, FURNISH, AND INSTALL FLOATS, COMPLETE WITH ALL APPURTENANCES, THAT SATISFY THE REQUIREMENTS OF THEIR INTENDED FUNCTION, THESE DRAWINGS, AND THE PERFORMANCE SPECIFICATIONS.
5. THE FLOATS SHALL BE COMPATIBLE WITH THE GUIDE PILES, GROUNDING SYSTEM, AND ABUTMENT.
6. ALLOW ADEQUATE GAP BETWEEN HANDRAIL SECTIONS TO ACCOMMODATE ARTICULATION OF DOCK THROUGH EXTREME TIDES PLUS 3 FOOT WAVES.



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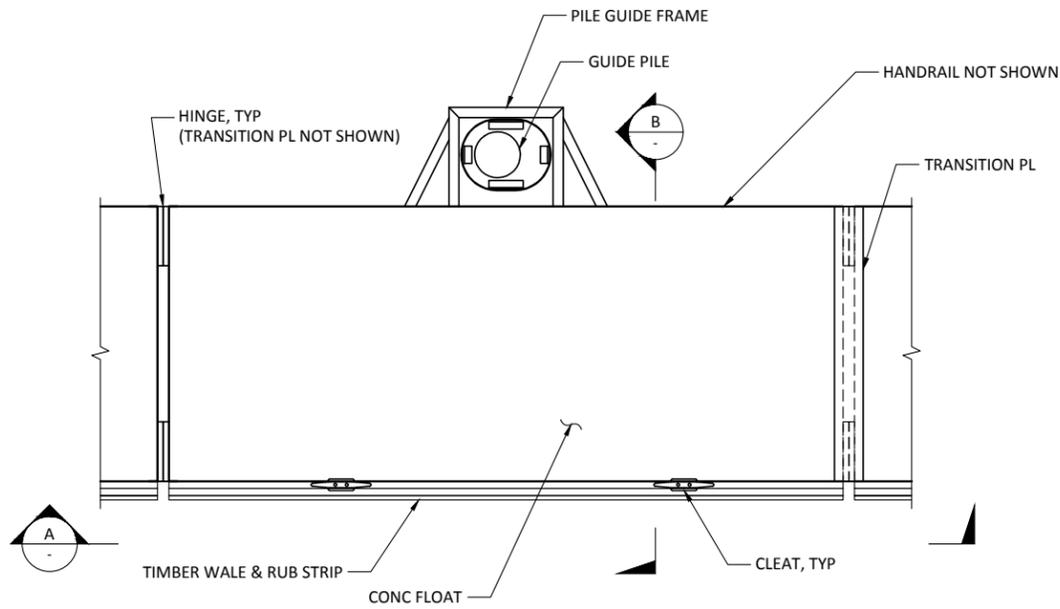
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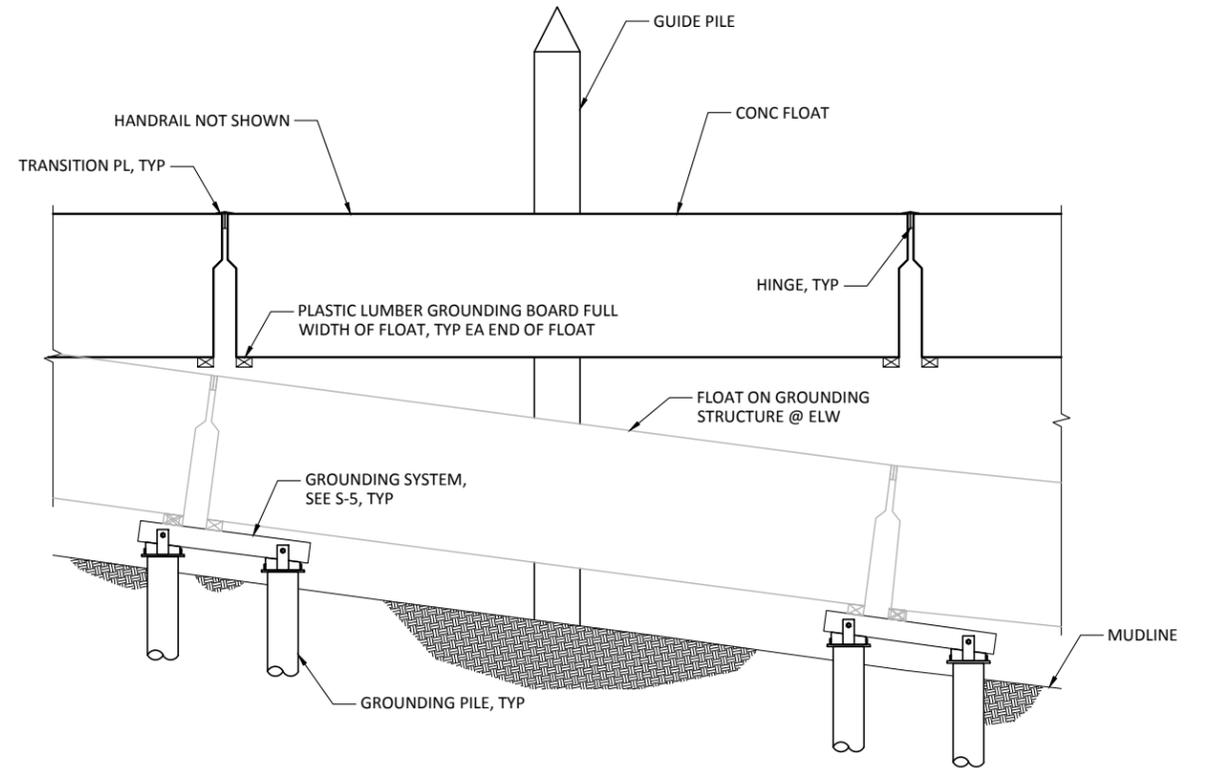
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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
FLOAT/ABUTMENT PLAN AND SECTIONS

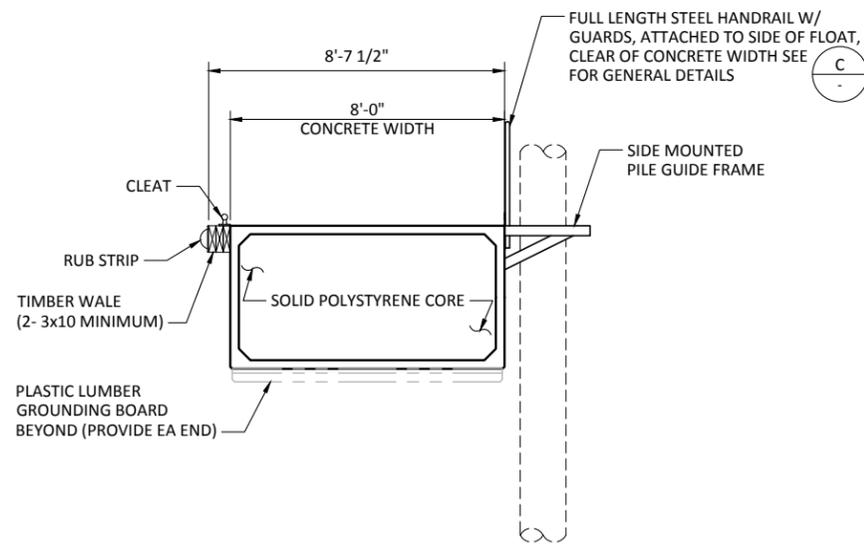
DRAWING NO. **S-3**
PROJECT NO. FAWAT-12-145
DATE: 4/11/16
SHEET NO. 36 OF 48



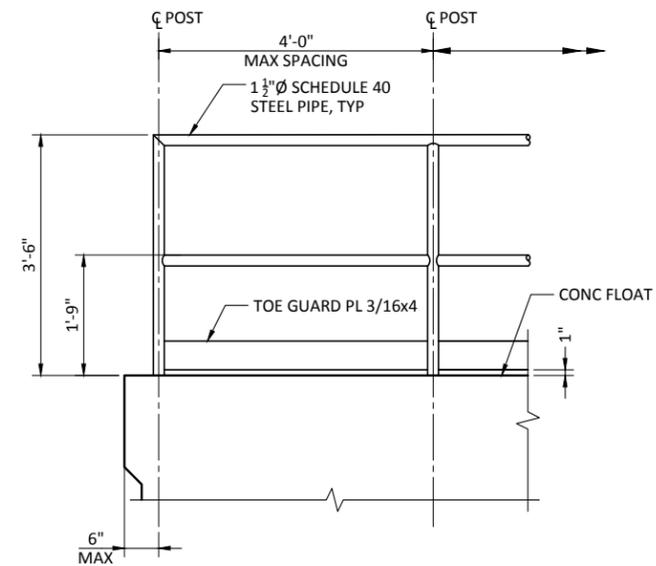
1 PLAN - TYPICAL FLOAT
SCALE: 3/8"=1'-0"



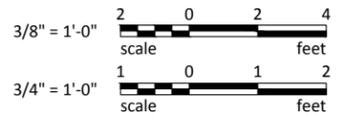
A ELEVATION - TYPICAL FLOAT
SCALE: 3/8"=1'-0"



B SECTION - TYPICAL FLOAT
SCALE: 3/8"=1'-0"



C DETAIL - GENERAL HANDRAIL LAYOUT
SCALE: 3/4"=1'-0"



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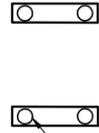
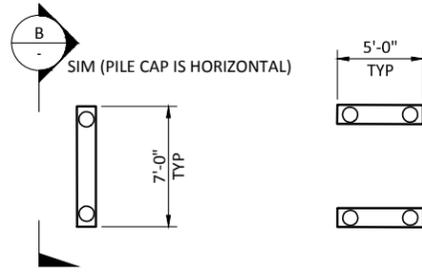


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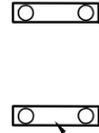
**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
FLOAT PLAN AND SECTIONS

BID DOCUMENTS

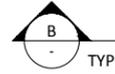
DRAWING NO. **S-4**
PROJECT NO. FAWAT-12-145
DATE: 3/22/17
SHEET NO. 37 OF 48



GROUNDING SYSTEM
SUPPORT PILE, TYP
SEE NOTE 3

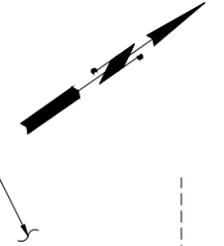


PLASTIC LUMBER PILE CAP, TYP
SEE NOTE 1

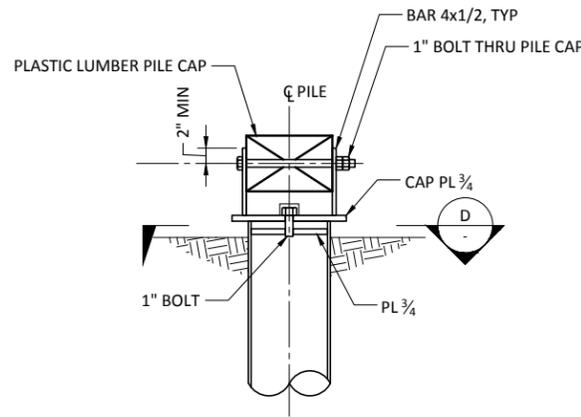


FLOATS AND GUIDE PILES NOT SHOWN

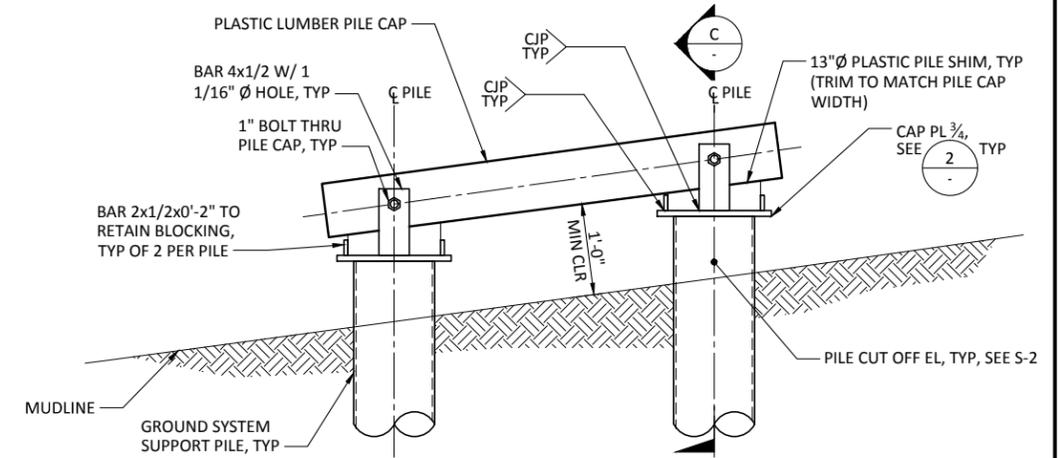
ABUTMENT NOT SHOWN



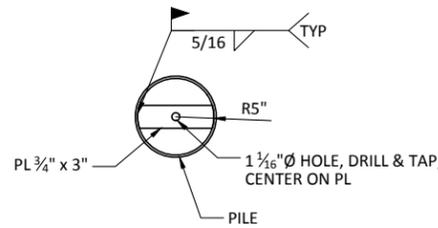
1
S-1 PLAN - FLOAT GROUNDING SYSTEM
SCALE: 3/16" = 1'-0"



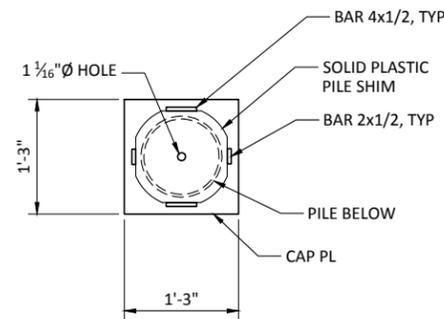
C
SECTION
SCALE: 1" = 1'-0"



B
ELEVATION - PILE CAP AT STEEL PILES
SCALE: 1" = 1'-0"



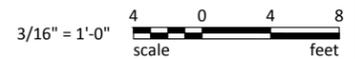
D
SECTION
SCALE: 1" = 1'-0"



2
DETAIL - CAP PLATE AT STEEL PILES
SCALE: 1" = 1'-0"

NOTES

1. ALL PLASTIC LUMBER SHALL BE BLACK PLASTIC. SEE SPECIFICATIONS.
2. TRIM AND/OR SHIM PILE TOPS TO PROVIDE A SNUG FIT WITH COMPLETE BEARING OF THE PILE CAP. COAT PILE TOPS IN ACCORDANCE WITH THE SPECIFICATIONS.
3. PROVIDE COATING ON THE UPPER 5 FEET OF EACH GROUNDING SYSTEM SUPPORT PILE.



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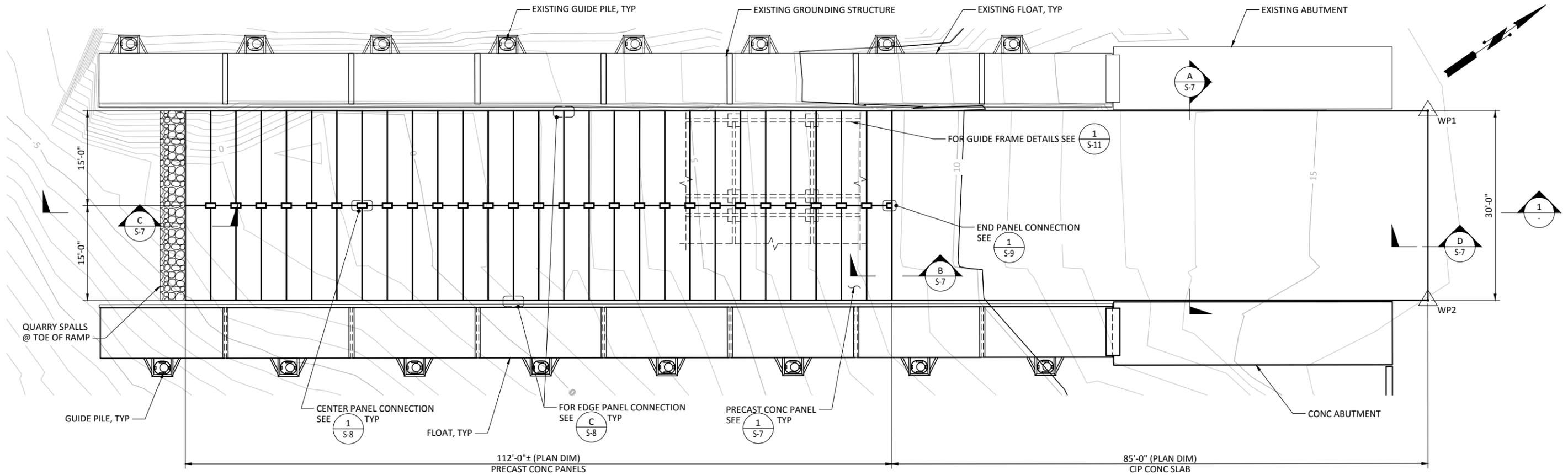
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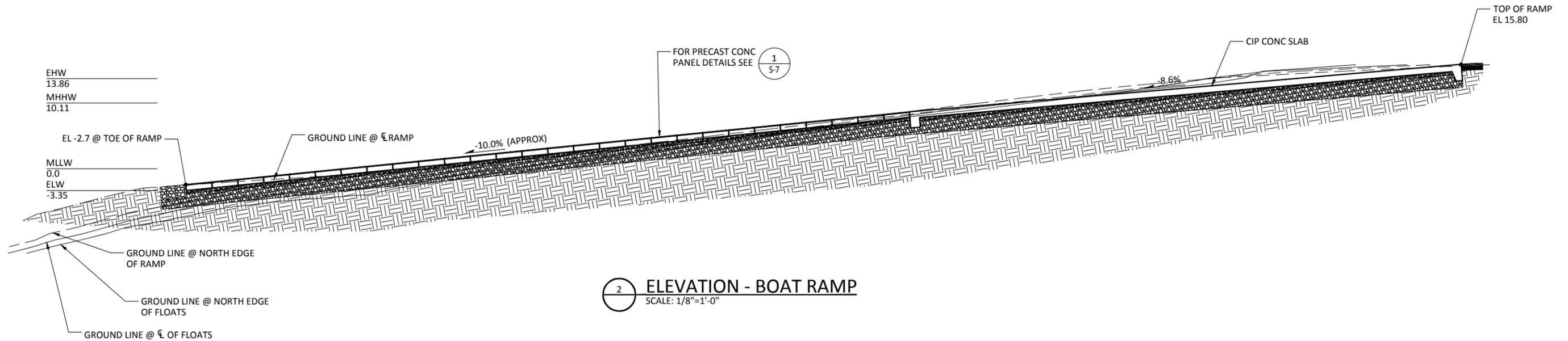
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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
GROUNDING SYSTEM PLAN, DETAILS AND FLOAT SECTIONS

DRAWING NO. **S-5**
PROJECT NO. FAWAT-12-145
DATE: 4/11/16
SHEET NO. 38 OF 48



1 PLAN - BOAT RAMP
SCALE: 1/8"=1'-0"



2 ELEVATION - BOAT RAMP
SCALE: 1/8"=1'-0"

BID DOCUMENTS

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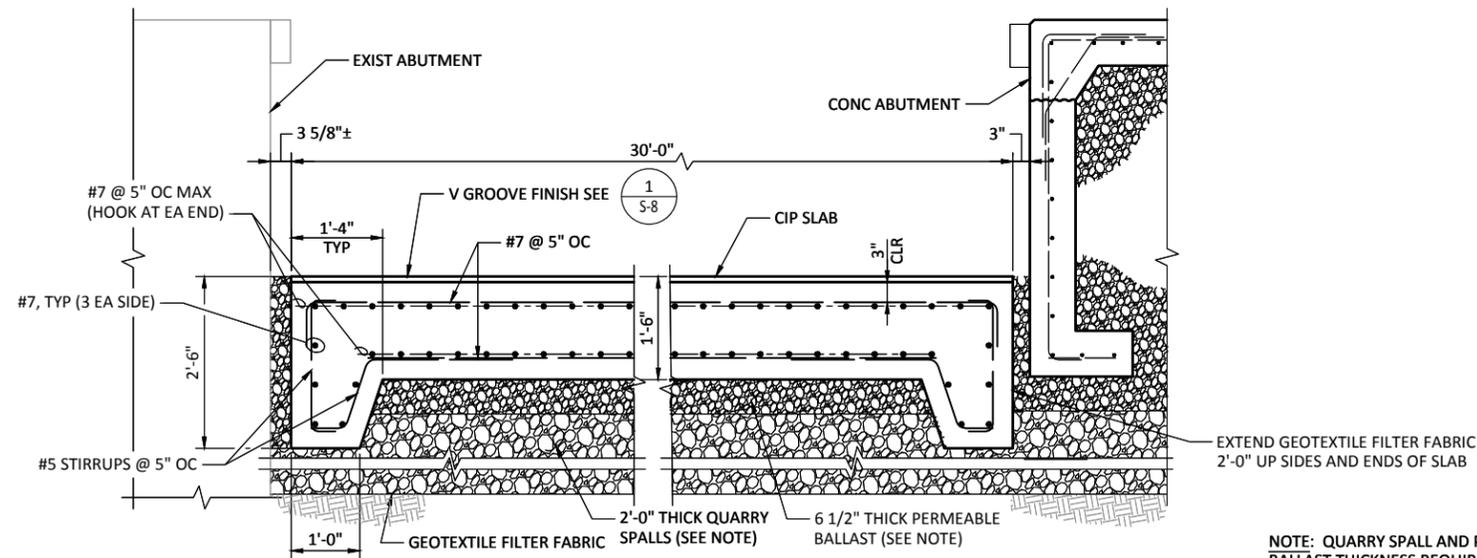
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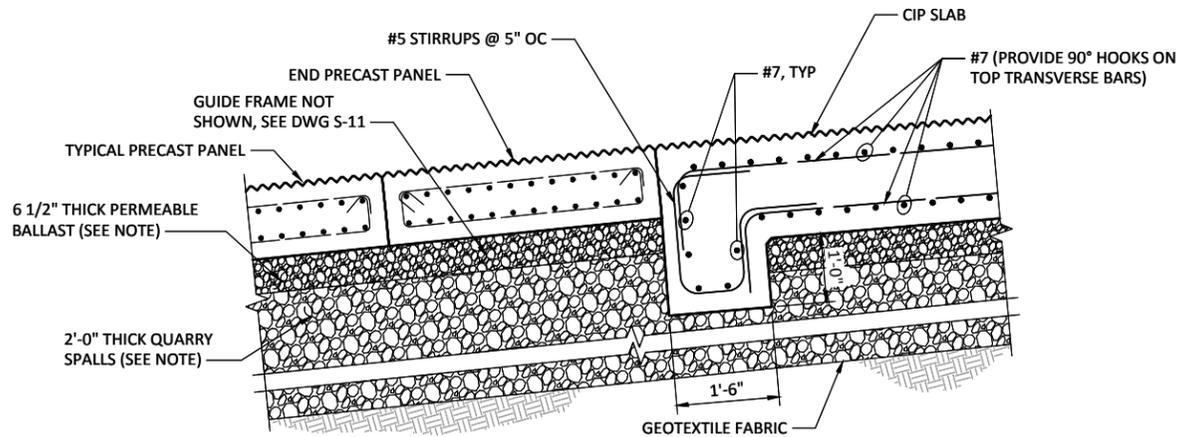
**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
BOAT RAMP PLAN AND ELEVATIONS

DRAWING NO. **S-6**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **39 OF 48**

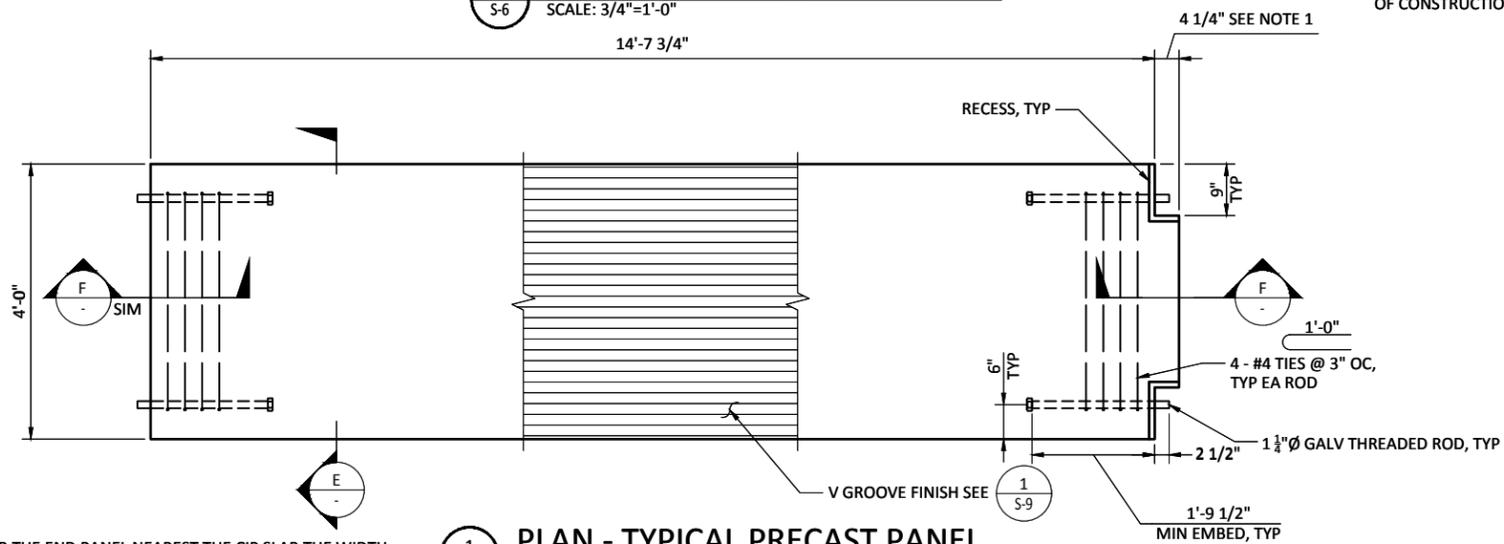


A
SECTION - CAST-IN-PLACE SLAB
SCALE: 3/4"=1'-0"

NOTE: QUARRY SPALL AND PERMEABLE BALLAST THICKNESS REQUIREMENTS WILL BE REVIEWED BY THE ENGINEER AT START OF CONSTRUCTION. SEE SPECIFICATIONS.



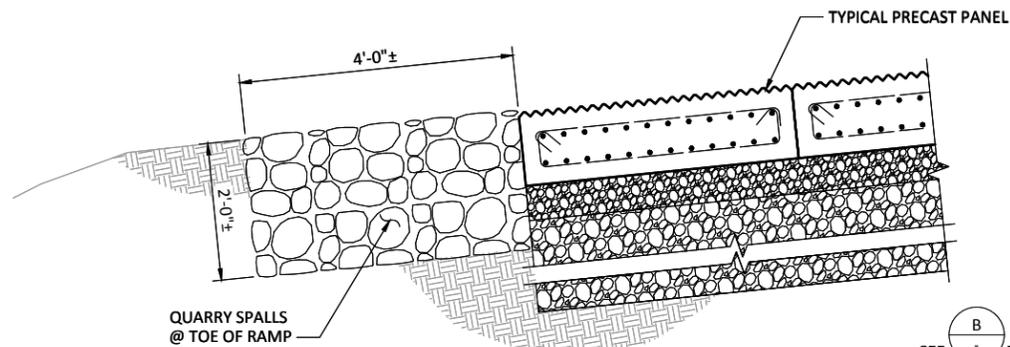
B
SECTION - CAST-IN-PLACE TO PRECAST TRANSITION
SCALE: 3/4"=1'-0"



1
PLAN - TYPICAL PRECAST PANEL
SCALE: 3/4"=1'-0"

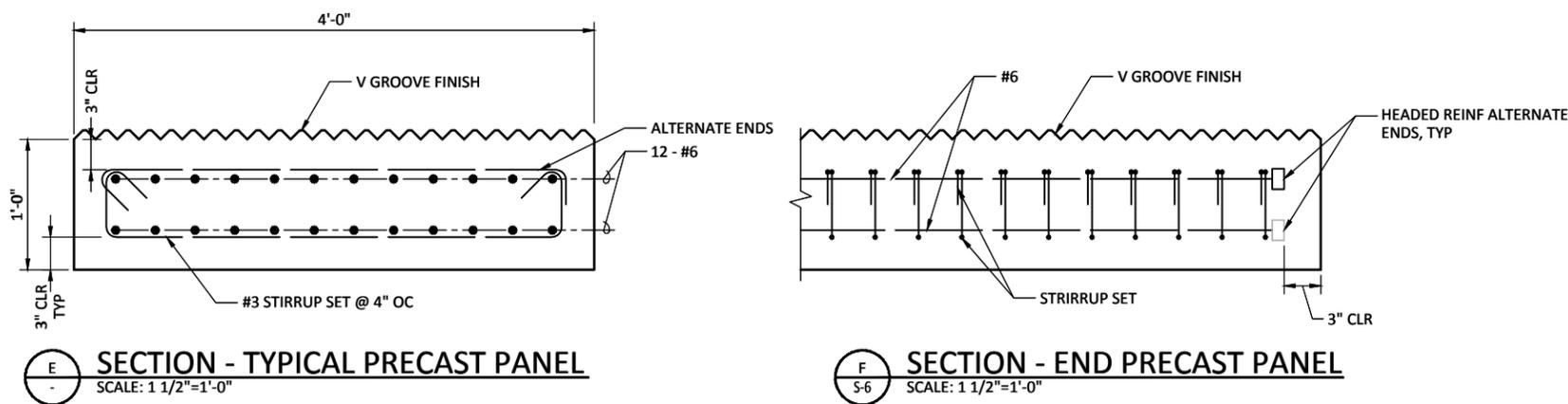
NOTE:

1. FOR THE END PANEL NEAREST THE CIP SLAB THE WIDTH OF THE BLOCKOUT SHALL BE 8"



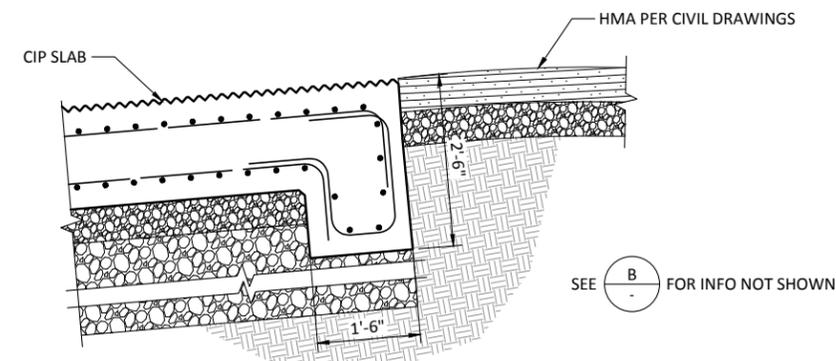
C
SECTION - TOE OF RAMP
SCALE: 3/4"=1'-0"

SEE **B** FOR INFO NOT SHOWN



E
SECTION - TYPICAL PRECAST PANEL
SCALE: 1 1/2"=1'-0"

F
SECTION - END PRECAST PANEL
SCALE: 1 1/2"=1'-0"



D
SECTION - TOP OF RAMP
SCALE: 3/4"=1'-0"

SEE **B** FOR INFO NOT SHOWN.

BID DOCUMENTS

MARK	REVISION DESCRIPTION	BY	APP.	DATE

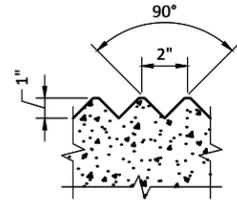
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Federal Way, Washington 98003-2600
(206) 431-2300 Fax: (206) 431-2250



DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB

**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
BOAT RAMP SECTIONS AND DETAILS

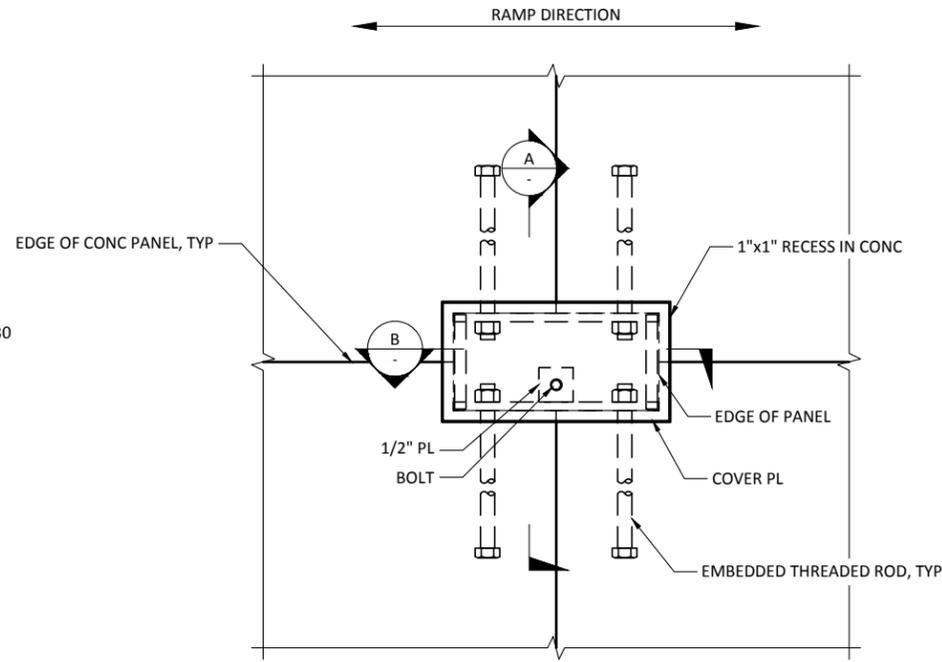
DRAWING NO. **S-7**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **40 OF 48**



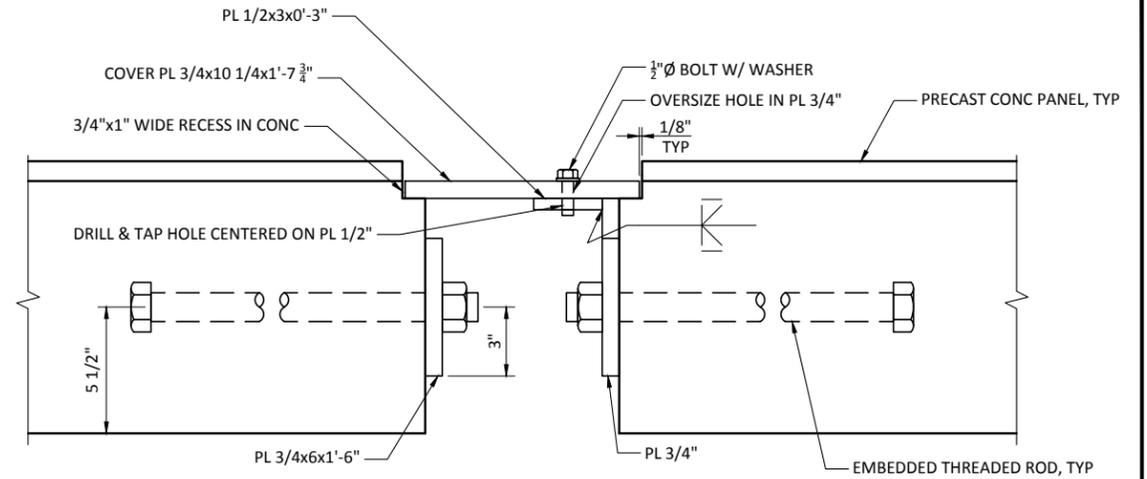
NOTES:

- V-GROOVE FINISH FOR PRECAST PANELS AND CAST IN PLACE SLAB SHALL BE ANGLED AT 30 DEGREES FROM THE PERPENDICULAR OF THE LAUNCH RAMP.
- V-GROOVES SHALL BE ORIENTED IN THE DOWNSTREAM DIRECTION DURING EBB TIDES.

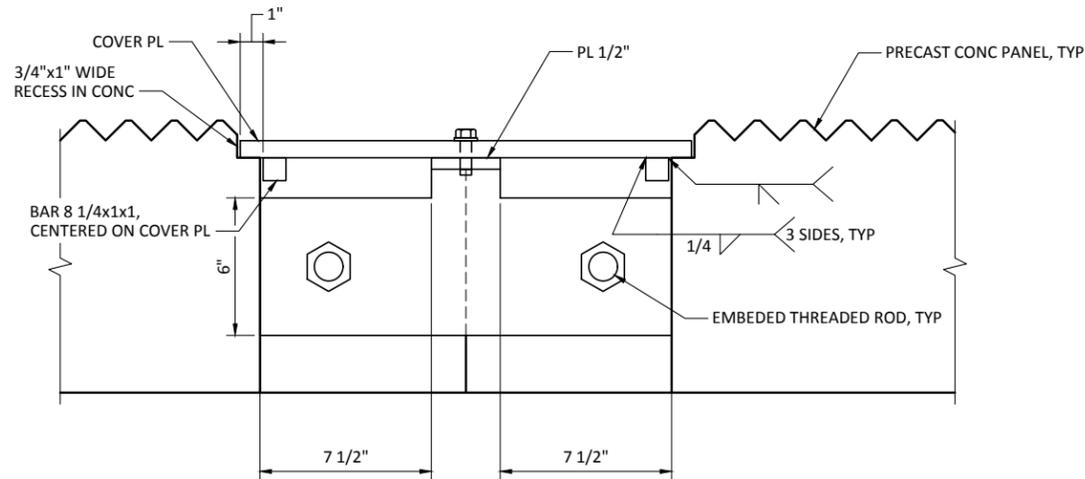
1
S-7 **DETAIL - V-GROOVE FINISH**
SCALE: 3"=1'-0"



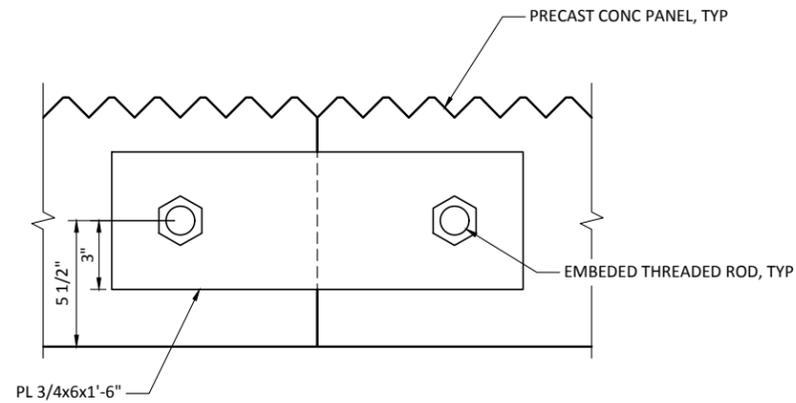
2
S-6 **PLAN - PANEL CONNECTION**
SCALE: 1 1/2"=1'-0"



A
- **SECTION - CENTER PANEL CONNECTION**
SCALE: 3"=1'-0"



B
- **SECTION - CENTER PANEL CONNECTION**
SCALE: 3"=1'-0"



C
S-6 **SECTION - EDGE PANEL CONNECTION**
SCALE: 3"=1'-0"

BID DOCUMENTS

MARK	REVISION DESCRIPTION	BY	APP.	DATE

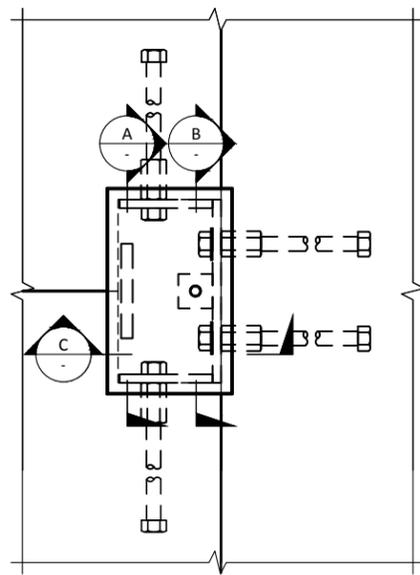
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Federal Way, Washington 98003-2600
(206) 431-2300 Fax: (206) 431-2250



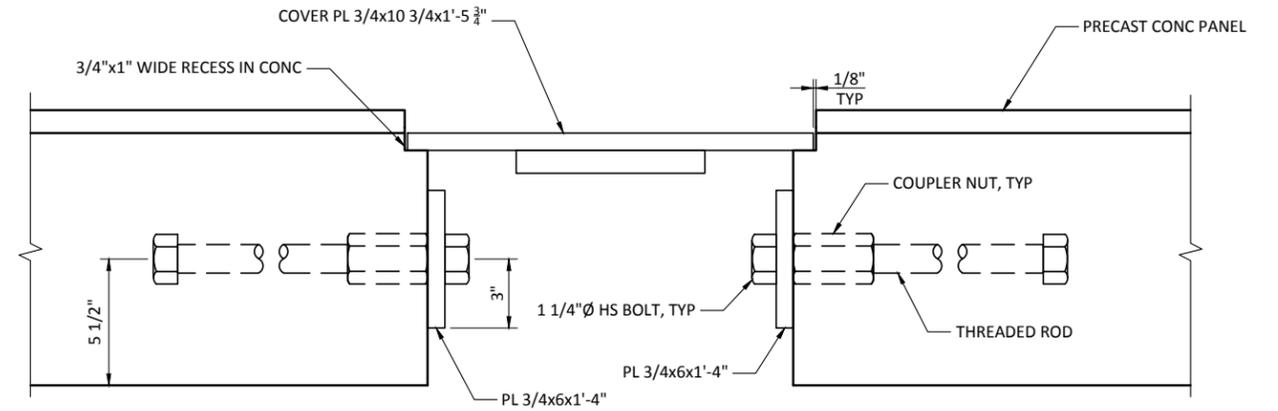
DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB

**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
BOAT RAMP DETAILS - SHEET 1

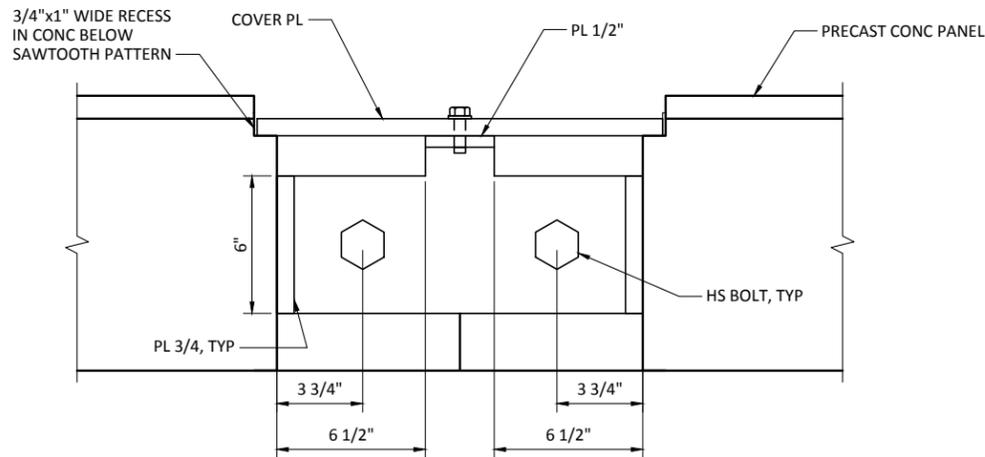
DRAWING NO. **S-8**
PROJECT NO. **FAWAT-12-145**
DATE: **3/22/17**
SHEET NO. **41 OF 48**



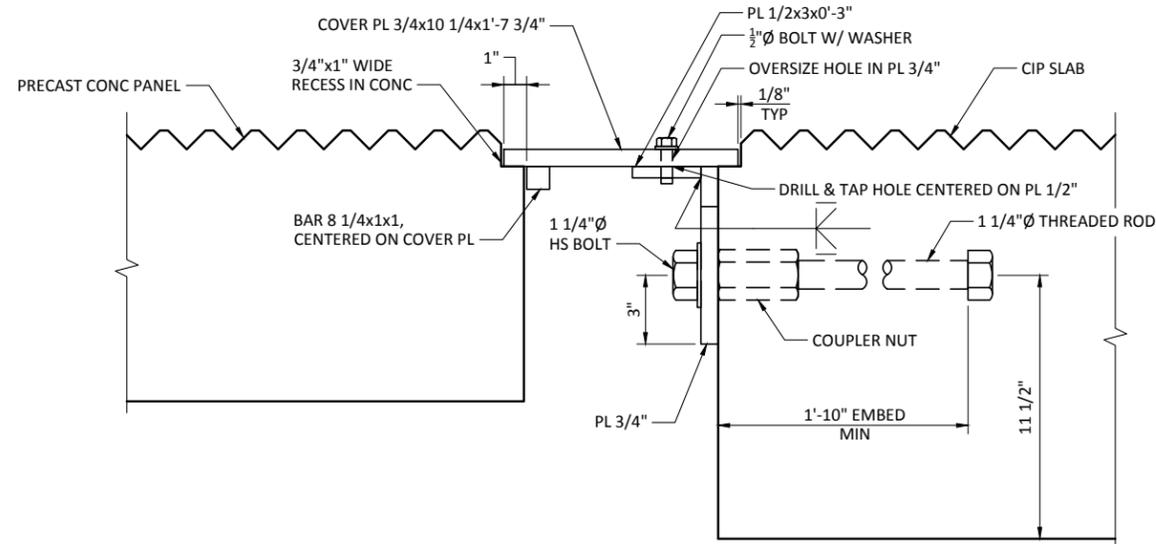
1 PLAN - END PANEL CENTER CONNECTION
SCALE: 1 1/2"=1'-0"



A SECTION - CENTER PANEL CONNECTION
SCALE: 3"=1'-0"



B SECTION - CENTER PANEL CONNECTION
SCALE: 3"=1'-0"



C SECTION - CENTER PANEL CONNECTION
SCALE: 3"=1'-0"

- NOTES:**
- FOR DETAILS NOT SHOWN SEE DWG S-8

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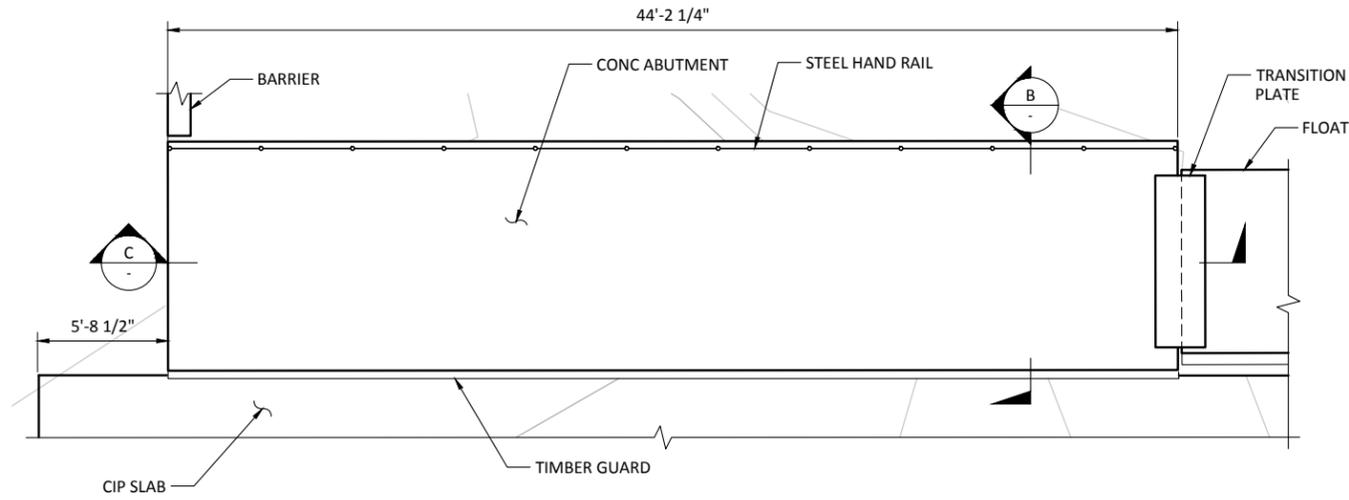
DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB

**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

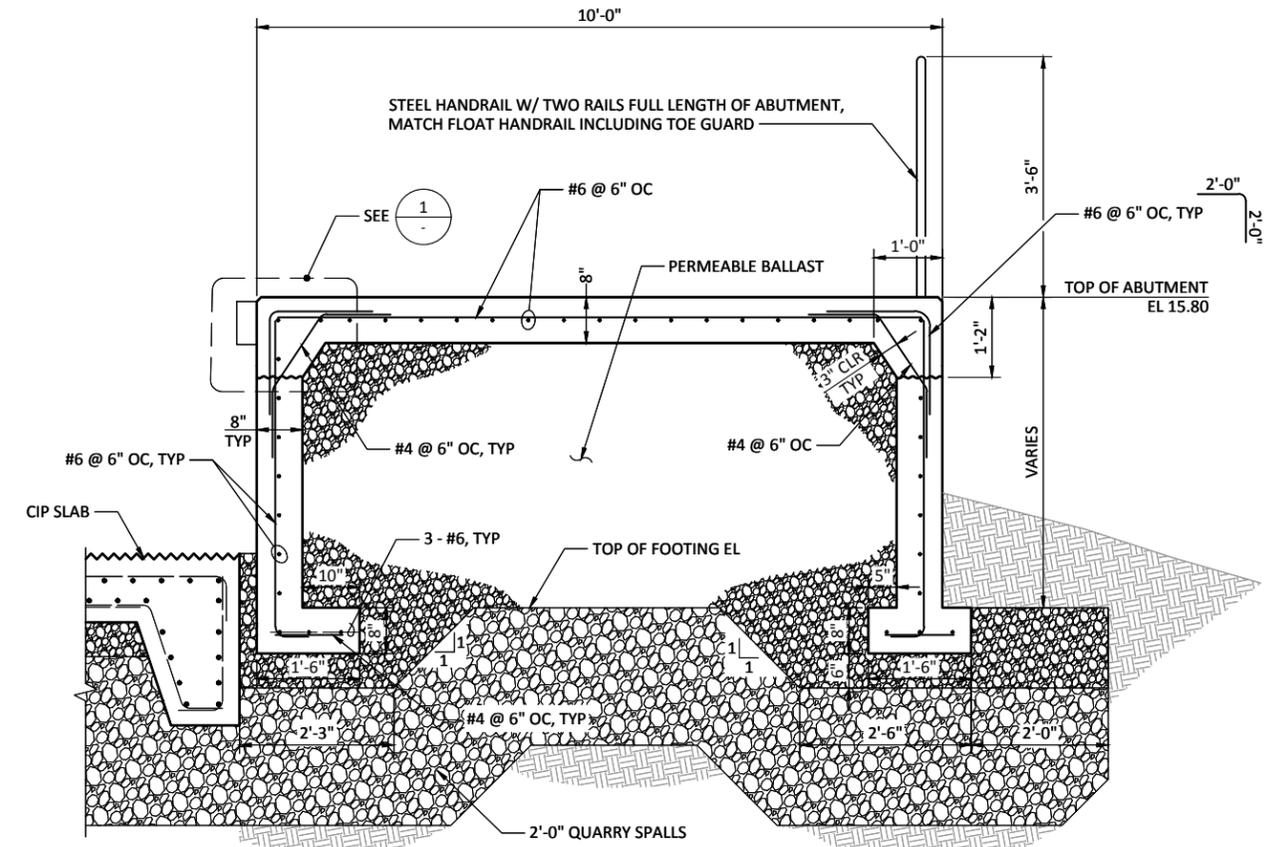
BOAT RAMP DETAILS - SHEET 2

BID DOCUMENTS

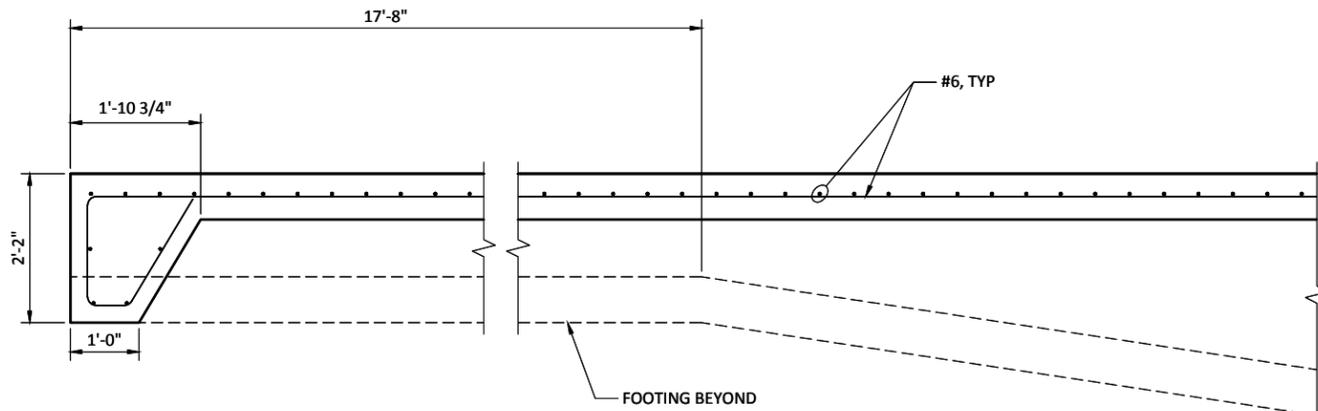
DRAWING NO. **S-9**
PROJECT NO. FAWAT-12-145
DATE: 3/22/17
SHEET NO. 42 OF 48



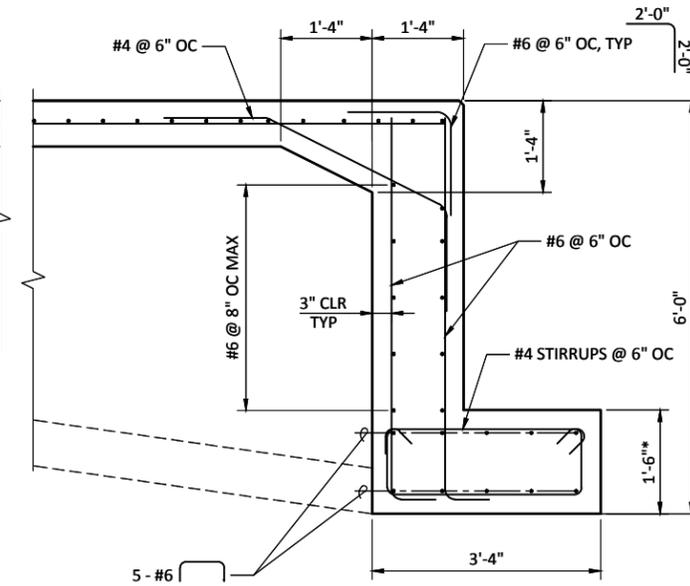
A PLAN - CONCRETE ABUTMENT
SCALE:



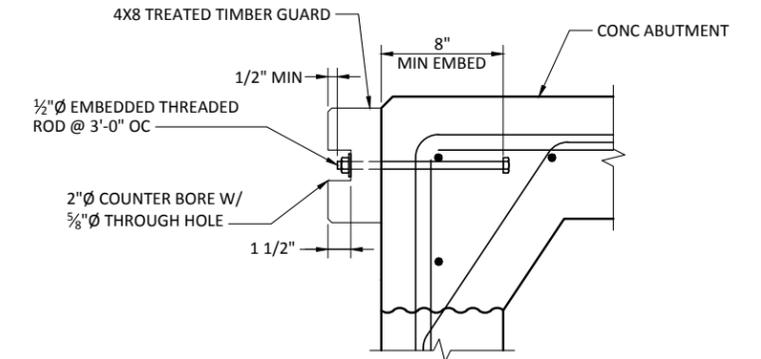
B SECTION - CONC ABUTMENT
SCALE: 3/4"=1'-0"



C SECTION - CONC ABUTMENT
SCALE: 3/4"=1'-0"



NOTE:
* FOOTING HEIGHT MAY VARY DEPENDING ON REQUIRED FLOAT HEIGHT FROM MANUFACTURER.



1 DETAIL - TIMBER GUARD
SCALE:

BID DOCUMENTS

MARK	REVISION DESCRIPTION	BY	APP.	DATE

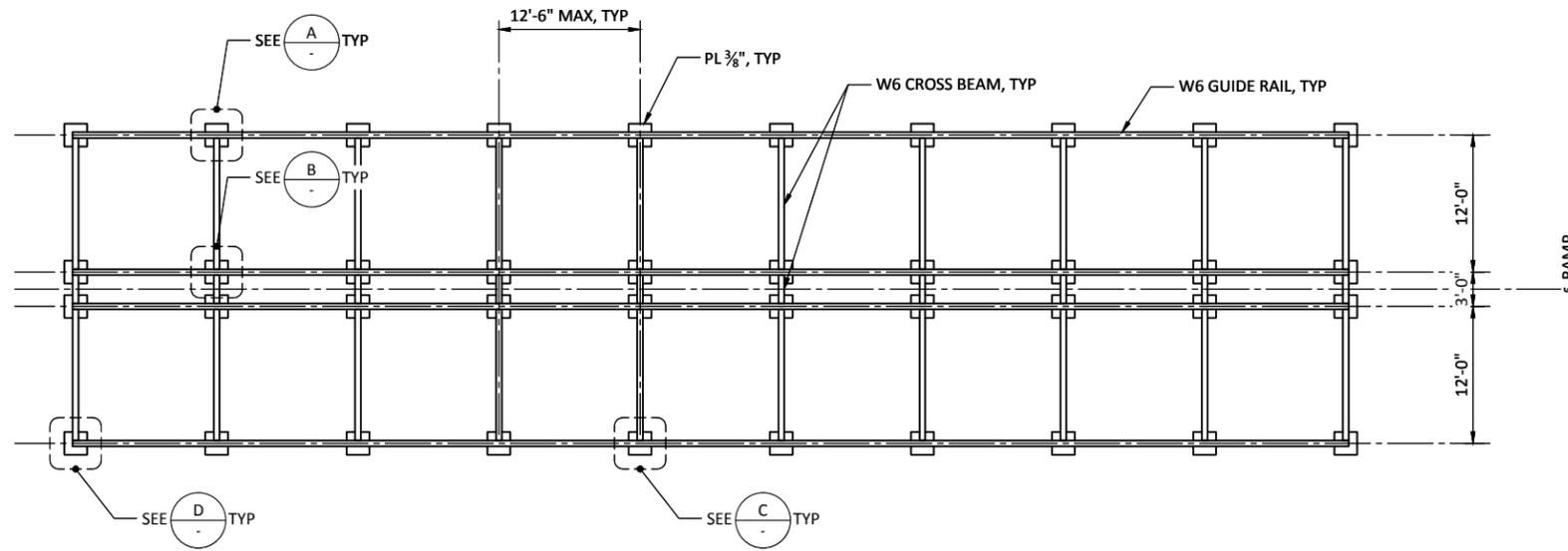
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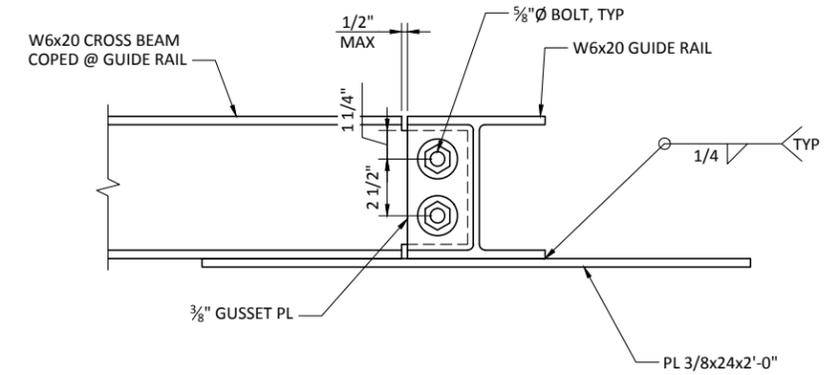
DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB

**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
ABUTMENT PLAN AND SECTIONS

DRAWING NO. **S-10**
PROJECT NO. FAWAT-12-145
DATE: 3/22/17
SHEET NO. 43 OF 48



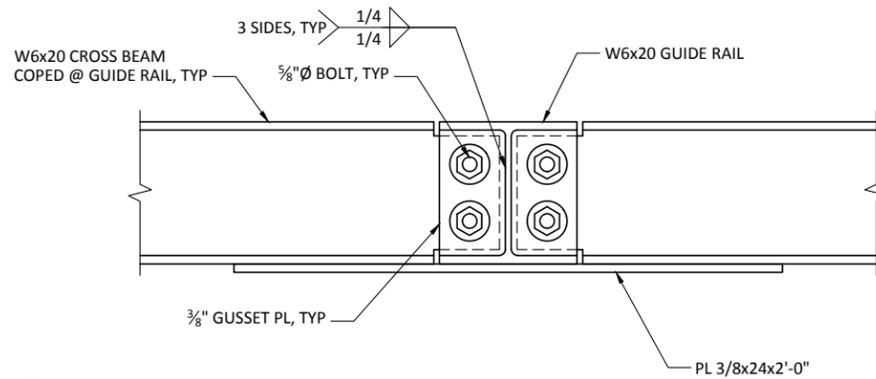
1 PLAN - GUIDE RAIL SYSTEM
SCALE: 1/8"=1'-0"



A DETAIL - EDGE CONNECTION
SCALE: 3"=1'-0"

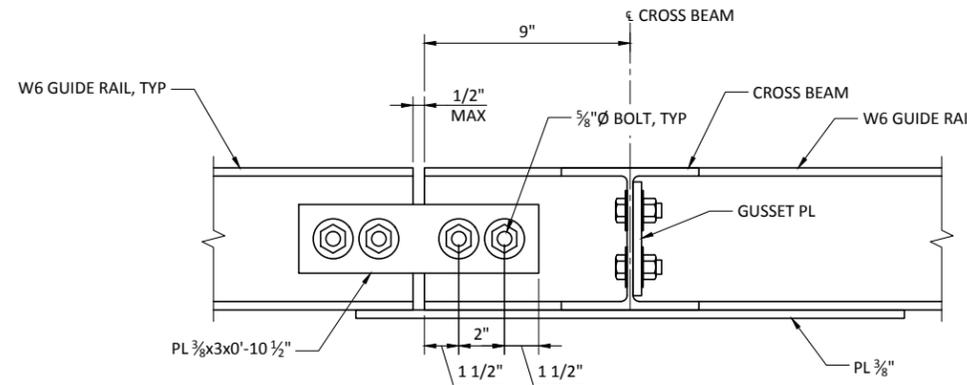
NOTES:

1. SHOP PRIME ALL STEEL, TYPICAL, DO NOT GALVANIZE, USE HDG FASTENERS.
2. CONTRACTOR MAY SUBSTITUTE WELDED CONNECTIONS FOR BOLTED CONNECTIONS.

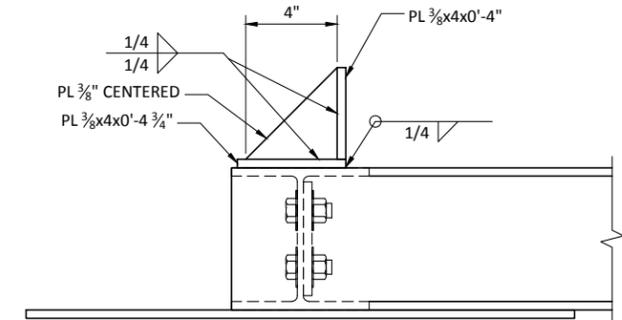


NOTE:
FOR DETAILS NOT SHOWN SEE SECTION A

B DETAIL - TYPICAL CENTER CONNECTION
SCALE: 3"=1'-0"



C DETAIL - GUIDE RAIL SPLICE
SCALE: 3"=1'-0"



D DETAIL - GUIDE RAIL STOP
SCALE: 3"=1'-0"

BID DOCUMENTS



DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB

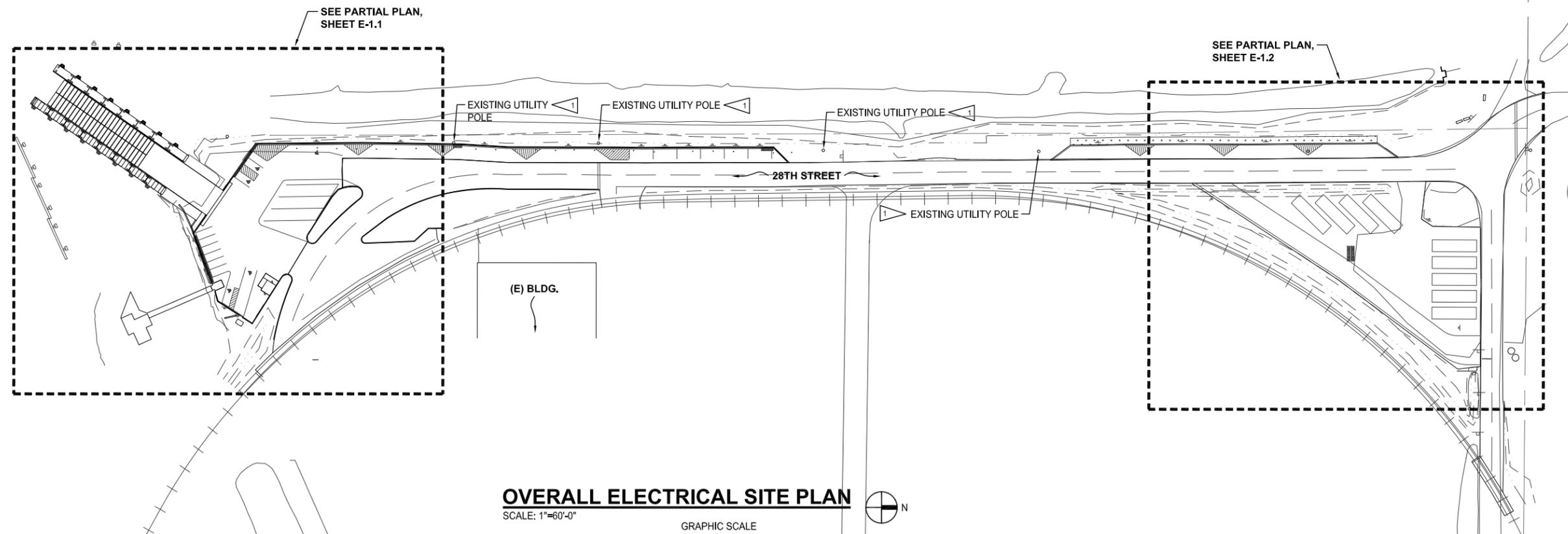
**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
GUIDE FRAME PLAN AND DETAILS

DRAWING NO. **S-11**
PROJECT NO. FAWAT-12-145
DATE: 4/11/16
SHEET NO. 44 OF 48

MARK	REVISION DESCRIPTION	BY	APP.	DATE

ELECTRICAL NOTES:

1 ▷ GRAYS HARBOR PUD PROVIDING AND CONNECTING NEW STREET LIGHT ON EXISTING UTILITY POLE.



IF SHEET IS LESS THAN 22" x 34"
IT IS A REDUCED SET

BID DOCUMENTS

MARK	REVISION DESCRIPTION	BY	APP.	DATE

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Federal Way, Washington 98003-2600
(206) 431-2300 Fax: (206) 431-2250

CROSS ENGINEERS, INC
6509 6th Avenue Tacoma, WA 98406
Phone: (253) 759-0118 Job Number: 14-114
Info@crossengineers.com

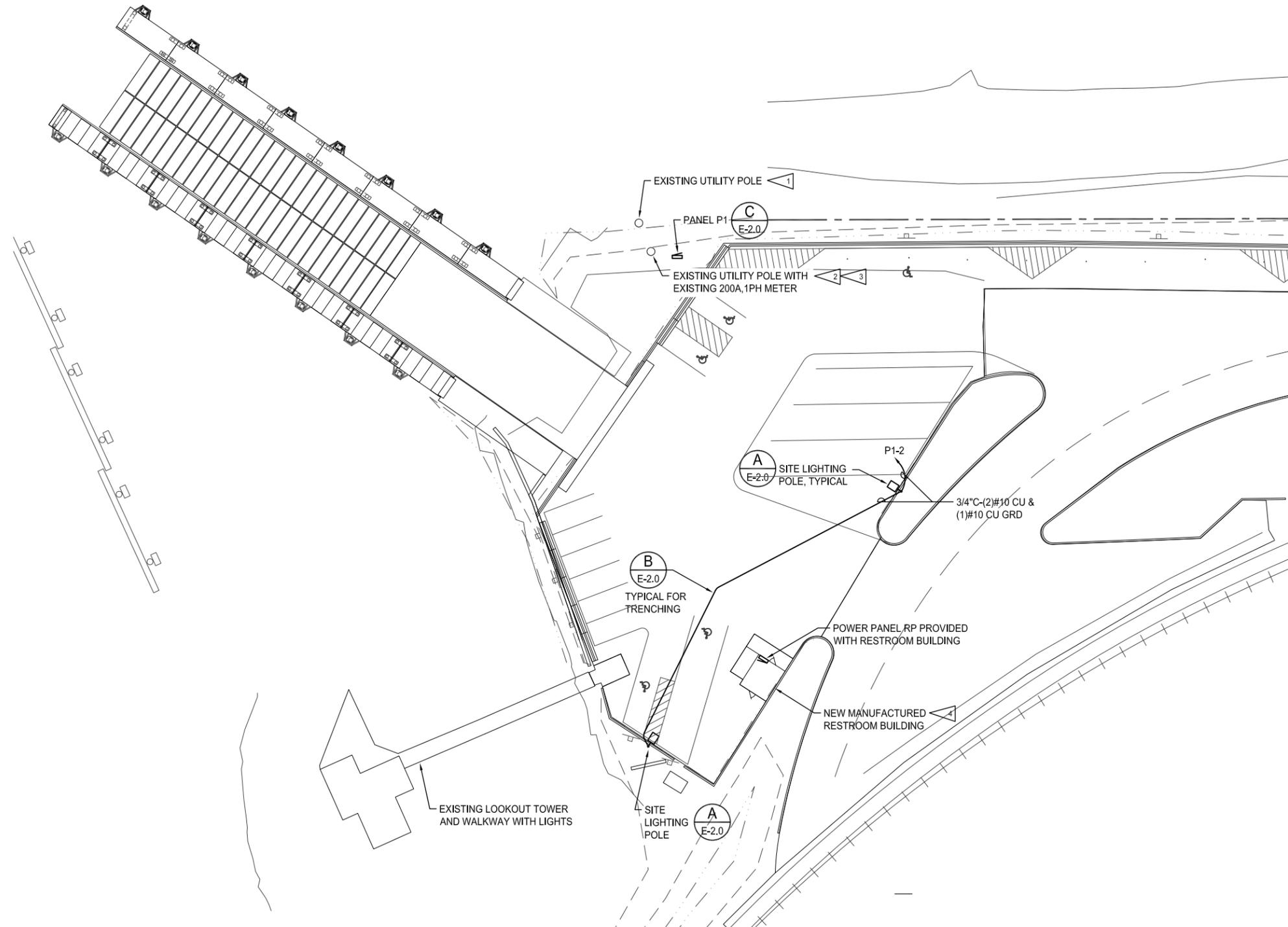


DRAWN BY JAE
DESIGN BY SJK
CHECK BY SLH
PROJ MGR GLW

**PORT OF GRAYS HARBOR
28TH STREET IMPROVEMENTS CONCEPT STUDY**

OVERALL ELECTRICAL SITE PLAN

DRAWING NO. **E-1.0**
PROJECT NO. **FAWAT-12-145**
DATE: **3/17/17**
SHEET NO. **45 - OF - 48**

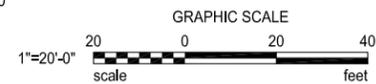


ELECTRICAL NOTES:

- 1 GRAYS HARBOR PUD PROVIDING AND CONNECTING NEW STREET LIGHT ON EXISTING UTILITY POLE.
- 2 CONTRACTOR SHALL REMOVE EXISTING PANEL AND CONNECT NEW PANEL P1 . SEE POWER RISER, SHEET E-2.0.
- 3 CONTRACTOR SHALL INTERCEPT EXISTING LOOKOUT TOWER LIGHT CIRCUIT AT BASE OF UTILITY POLE AND EXTEND TO NEW POWER PANEL P1. CONNECT EXISTING LIGHTING CIRCUIT TO NEW POWER PANEL P1, CIRCUIT #4. CONTRACTOR SHALL COORDINATE WITH PORT OF GRAYS HARBOR FOR INSTALLATION OF NEW SECURITY CAMERA AND RELATED EQUIPMENT (PORT OF GRAYS HARBOR FURNISHED) ON POLE. CONTRACTOR SHALL PROVIDE 3/4"C(RGS)-(2)#12 CU & (1)#12 CU GRD FROM PANEL P1 AND CONNECT CAMERA.
- 4 CONTRACTOR SHALL COORDINATE WITH PREMANUFACTURED RESTROOM BUILDING SUPPLIER. PROVIDE CONDUIT AND CONDUCTORS TO CONNECT POWER PANEL PROVIDED WITH BUILDING TO NEW POWER PANEL P1. SEE POWER RISER DIAGRAM, SHEET E-2.0 FOR ADDITIONAL INFORMATION.

PARTIAL ELECTRICAL SITE PLAN

SCALE: 1"=20'-0"



IF SHEET IS LESS THAN 22" x 34"
IT IS A REDUCED SET

BID DOCUMENTS

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 6509 6th Avenue Tacoma, WA 98406
 Phone: (253) 759-0118 Job Number: 14-114
 Info@crossengineers.com

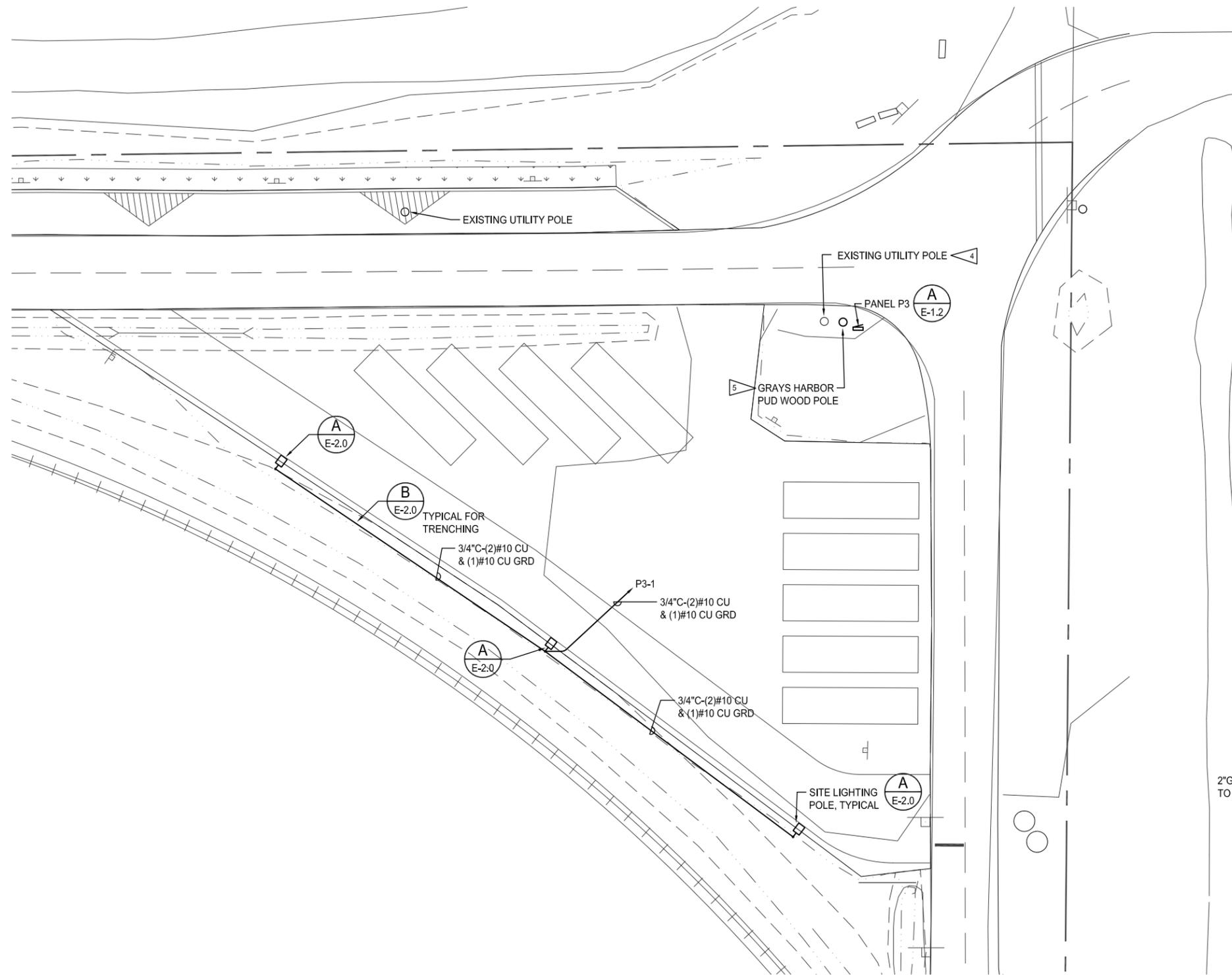


DRAWN BY JAE
 DESIGN BY SJK
 CHECK BY SLH
 PROJ MGR GLW

**PORT OF GRAYS HARBOR
 28TH STREET IMPROVEMENTS CONCEPT STUDY**

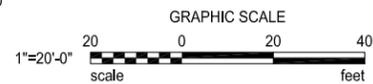
PARTIAL ELECTRICAL SITE PLAN

DRAWING NO. **E-1.1**
 PROJECT NO. **FAWAT-12-145**
 DATE: **3/17/17**
 SHEET NO. **46 - OF - 48**



PARTIAL ELECTRICAL SITE PLAN

SCALE: 1"=20'-0"



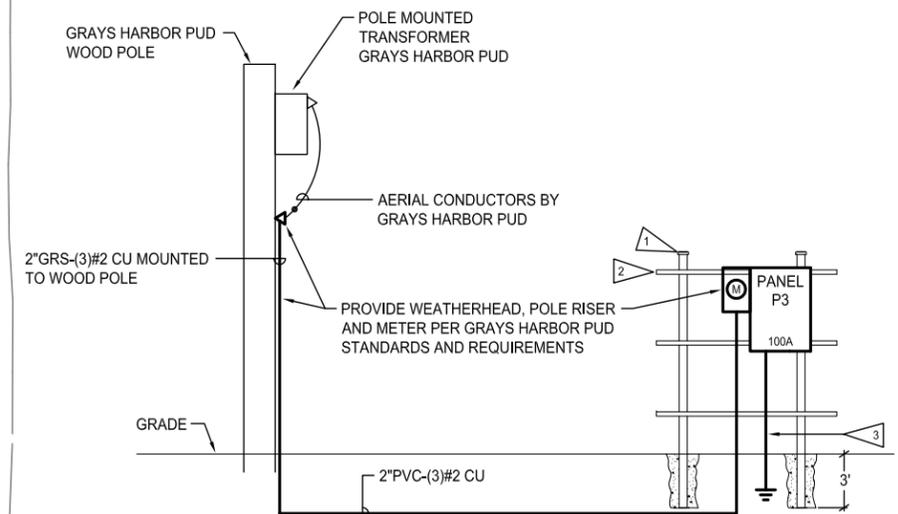
ELECTRICAL NOTES:

- 1 PROVIDE 8'-0" SECTION OF 3" RIGID GALVANIZED STEEL CONDUIT WITH THREADED END CAP. PROVIDE 8" ROUND x 3'-0" DEEP, 300 PSI CONCRETE BASE AND EMBED CONDUIT 3'-0" BELOW FINISHED GRADE. TYPICAL OF TWO(2).
- 2 PROVIDE (3)1-5/8" HOT DIP GALVANIZED STRUT EACH SIDE BETWEEN RIGID STEEL CONDUIT POSTS FOR MOUNTING EQUIPMENT. DRILL CONDUIT AND PROVIDE STAINLESS STEEL MOUNTING HARDWARE FOR STRUT AND EQUIPMENT MOUNTING.
- 3 PROVIDE (2)10'-0" x 3/4" COPPER CLAD STEEL GROUND RODS SPACED NO LESS THAN 10 FEET APART. PROVIDE #6 BARE CU BETWEEN EACH GROUND ROD AND UP TO EQUIPMENT MOUNTING STRUCTURE AND ELECTRICAL PANEL. INSTALL GROUND WIRE IN 1"PVC SCHEDULE 40 TO 12" BELOW FINISHED GRADE FOR SECURITY.
- 4 GRAYS HARBOR PUD PROVIDING AND CONNECTING NEW STREET LIGHT ON EXISTING UTILITY POLE.
- 5 CONTRACTOR SHALL COORDINATE INSTALLATION WITH GRAYS HARBOR PUD OF UTILITY WOOD POLE AND TRANSFORMER TO SERVE PANEL P3.

NEMA 4X

SURFACE MOUNTING 10,000 AIC		PANEL SCHEDULE					
NO.	P3	LOCATION: EXTERIOR SERVING: EQUIPMENT			120/240 VOLTS 1PH 3WIRE 100 AMPS WITH 100 MAIN BREAKER		
CKT NO.	LOAD DESCRIPTION	KVA	TRIP AMPS	TRIP AMPS	KVA	LOAD DESCRIPTION	CKT NO.
1	PARKING LOT LIGHTS	.60	20			SPACE	2
3	SPARE						4
5							6
7							8
9							10
11	SPARE		20			SPACE	12
REMARKS: SERVICE ENTRANCE RATED.				CONNECTED LOAD:		.6 KVA	3 AMPS
				DEMAND LOAD:		.8 KVA	3 AMPS

PROVIDE HANDLE TIES FOR ALL MULTI-CIRCUIT HOMERUNS SHARING A NEUTRAL PER THE NATIONAL ELECTRIC CODE ARTICLE 210.4 MULTIWIRE BRANCH CIRCUITS, PART (B) DISCONNECTING MEANS. DRAWINGS ARE DIAGRAMMATIC. WHERE THE CONTRACTOR MODIFIES THE CIRCUITING, THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL NEUTRAL PER CIRCUIT, MULTI-POLE CIRCUIT BREAKERS, OR CIRCUIT BREAKER HANDLE TIE TO MEET THE NEC ARTICLE. ALL COSTS ASSOCIATED WITH MODIFICATIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID.



PANEL P3 SERVICE - POWER RISER DIAGRAM
E-1.2 NO SCALE

IF SHEET IS LESS THAN 22" x 34"
IT IS A REDUCED SET

BID DOCUMENTS

PORT OF GRAYS HARBOR
28TH STREET IMPROVEMENTS CONCEPT STUDY
OVERALL ELECTRICAL SITE PLAN

DRAWING NO. **E-1.2**
PROJECT NO. FAWAT-12-145
DATE: 3/17/17
SHEET NO. 47 - OF - 48

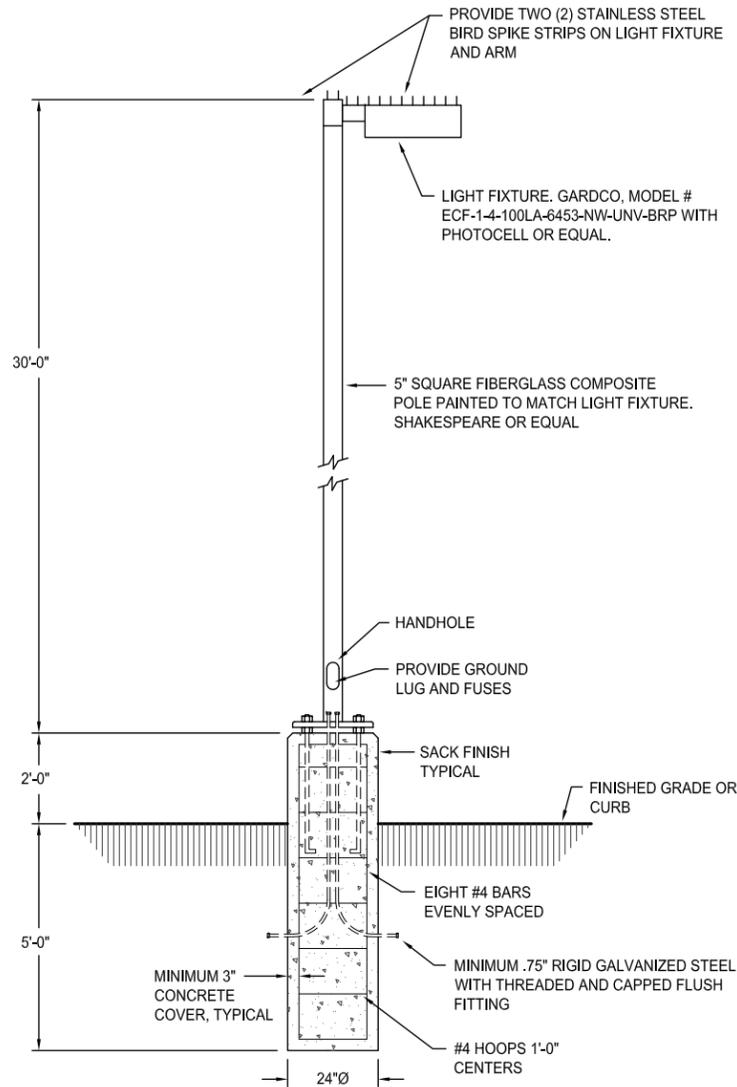
33301 9th Avenue South, Suite 300
Federal Way, Washington 98003-2600
(206) 431-2300 Fax: (206) 431-2250

6509 6th Avenue Tacoma, WA 98406
Phone: (253) 759-0118 Job Number: 14-114
Info@crossengineers.com

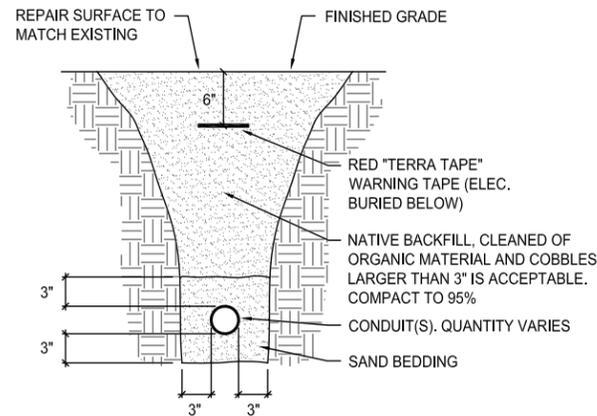
3/17/17

DRAWN BY JAE
DESIGN BY SJK
CHECK BY SLH
PROJ MGR GLW

MARK	REVISION DESCRIPTION	BY	APP.	DATE



A LIGHT POLE AND CONCRETE BASE
E-2.0 NOT TO SCALE



B CONDUIT TRENCHING
E-2.0 NOT TO SCALE

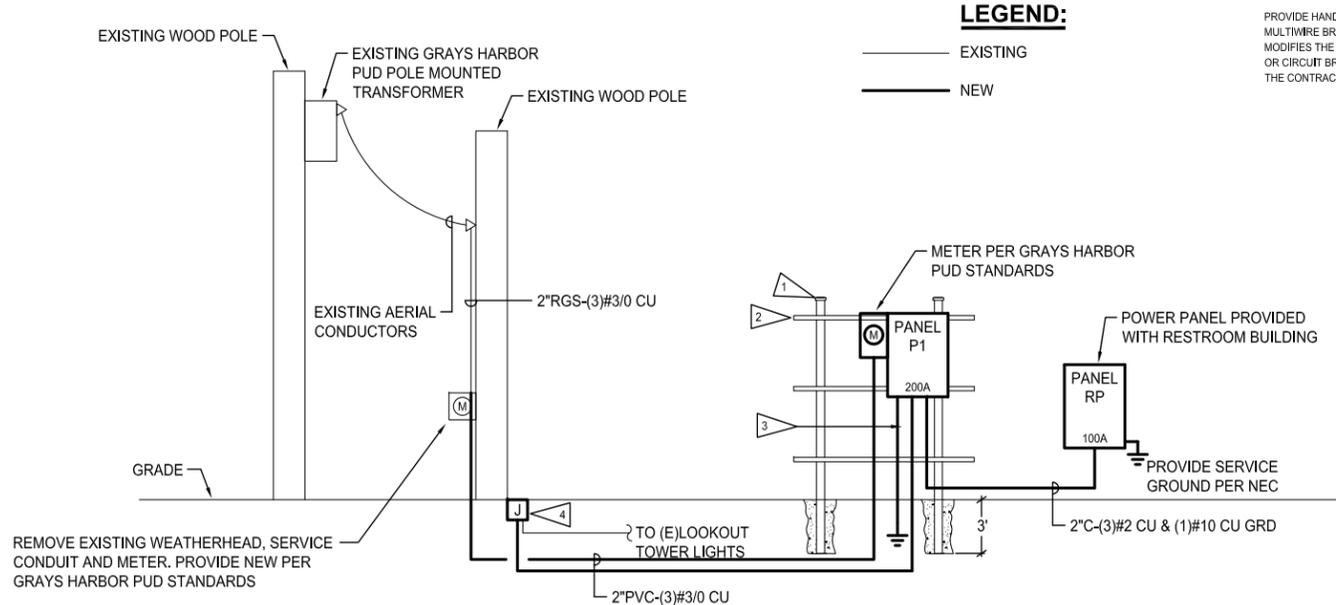
ELECTRICAL NOTES:

- 1 PROVIDE 8'-0" SECTION OF 3" RIGID GALVANIZED STEEL CONDUIT WITH THREADED END CAP. PROVIDE 8" ROUND x 3'-0" DEEP, 300 PSI CONCRETE BASE AND EMBED CONDUIT 3'-0" BELOW FINISHED GRADE. TYPICAL OF TWO(2).
- 2 PROVIDE (3)1-5/8" HOT DIP GALVANIZED STRUT EACH SIDE BETWEEN RIGID STEEL CONDUIT POSTS FOR MOUNTING EQUIPMENT. DRILL CONDUIT AND PROVIDE STAINLESS STEEL MOUNTING HARDWARE FOR STRUT AND EQUIPMENT MOUNTING.
- 3 PROVIDE (2)10'-0" x 3/4" COPPER CLAD STEEL GROUND RODS SPACED NO LESS THAN 10 FEET APART. PROVIDE #6 BARE CU BETWEEN EACH GROUND ROD AND UP TO EQUIPMENT MOUNTING STRUCTURE AND ELECTRICAL PANEL. INSTALL GROUND WIRE IN 1" PVC SCHEDULE 40 TO 12" BELOW FINISHED GRADE FOR SECURITY.
- 4 CONTRACTOR SHALL INTERCEPT EXISTING CONDUIT AND CONDUCTORS AT BASE OF EXISTING UTILITY POLE - PROVIDE WSDOT J11A HANDHOLE AT EXISTING WOOD POLE AND PROVIDE 3/4" PVC CONDUIT WITH (2)#10 CU & (1)#10 CU GRD TO PANEL P1. PROVIDE WATERTIGHT SPLICES OF EXISTING AND NEW CONDUCTORS IN JUNCTION BOX.

NEMA 4X
SURFACE MOUNTING
22,000 AIC

P1		LOCATION: EXTERIOR		SERVING: EQUIPMENT		120/240 VOLTS 1PH 3WIRE		200 AMPS WITH 200 MAIN BREAKER	
CKT NO.	LOAD DESCRIPTION	KVA	TRIP AMPS	TRIP AMPS	KVA	LOAD DESCRIPTION	CKT NO.		
1	PANEL RP	10.00	100	20	.50	PARKING LOT LIGHTS	2		
3					1.50	(E) LOOKOUT TOWER LIGHTS	4		
5	SPARE		20		.10	SECURITY CAMERA	6		
7						SPARE	8		
9						SPARE	10		
11	SPARE		20	20		SPARE	12		
13	SPACE					SPACE	14		
15							16		
17							18		
19	SPACE					SPACE	20		
REMARKS: SERVICE ENTRANCE RATED.				CONNECTED LOAD:		12.1 KVA	50 AMPS		
				DEMAND LOAD:		12.6 KVA	53 AMPS		

PROVIDE HANDLE TIES FOR ALL MULTI-CIRCUIT HOMERUNS SHARING A NEUTRAL PER THE NATIONAL ELECTRIC CODE ARTICLE 210.4 MULTIWIRE BRANCH CIRCUITS. PART (B) DISCONNECTING MEANS, DRAWINGS ARE DIAGRAMMATIC. WHERE THE CONTRACTOR MODIFIES THE CIRCUITING, THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL NEUTRAL PER CIRCUIT, MULTI-POLE CIRCUIT BREAKERS, OR CIRCUIT BREAKER HANDLE TIE TO MEET THE NEC ARTICLE. ALL COSTS ASSOCIATED WITH MODIFICATIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID.



C PANEL P1 SERVICE - POWER RISER DIAGRAM
E-2.0 NO SCALE

LEGEND:

- EXISTING
- NEW

IF SHEET IS LESS THAN 22" x 34"
IT IS A REDUCED SET

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Federal Way, Washington 98003-2600
(206) 431-2300 Fax: (206) 431-2250

CROSS ENGINEERS, INC
6509 6th Avenue Tacoma, WA 98406
Phone: (253) 759-0118 Job Number: 14-114
Info@crossengineers.com

STEVEN L. HUBBS
REGISTERED PROFESSIONAL ENGINEER
3/17/17

DRAWN BY JAE
DESIGN BY SJK
CHECK BY SLH
PROJ MGR GLW

PORT OF GRAYS HARBOR
28TH STREET IMPROVEMENTS CONCEPT STUDY
ELECTRICAL DETAILS, PANEL SCHEDULES AND POWER RISER DIAGRAM

DRAWING NO. **E-2.0**
PROJECT NO. **FAWAT-12-145**
DATE: **3/17/17**
SHEET NO. **48 - OF - 48**

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