SPOKANE TRANSIT AUTHORITY

FUELING FACILITY

PROJECT # 2021-10628

Property/Project Information:

PARCEL NO:	35182.0034
ADDRESS:	1229 W. BOONE AVE.
ZONING:	GC-70 (GENERAL COMMERCIAL)
OWNER:	SPOKANE TRANSIT AUTHORITY

Contact Information:

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Sheet Index:

Vicinity Map:

General Note:

THE SPOKANE TRANSIT AUTHORITY PROJECT INCLUDES INSTALLATION OF THREE NEW 20,000 GALLON FUEL STORAGE TANKS AND REPLACING THE EXISTING FUEL DISPENSERS. THE TANKS WILL BE LOCATED IN CONCRETE UNDERGROUND VAULTS. THE SIX EXISTING 20,000 GALLON FUEL STORAGE TANKS LOCATED BELOW THE BUILDING FLOOR WILL BE DECOMMISSIONED AND ABANDONED IN PLACE. THE PROPOSED TANK LOCATION IS THE EAST EXTERIOR OF THE BOONE SOUTH GARAGE. SHORING WILL BE NEEDED FOR EXCAVATION AND VAULT INSTALLATION.

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DAVID L. PEDEN — STATE OF WASHINGTON — 27251 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

12/10/2021

STAMP

SHEET TITLE: COVER SHEET

PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By

BID SET

PROJ. NO.	2021-10628
DRAWN	CWD
CHECKED	CBM
DATE	12/10/2021

SHEET: G1.0

GENERAL NOTES

1. WORK AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS AND STANDARDS OF THE AUTHORITIES HAVING JURISDICTION. IF STANDARDS ARE NOT PROVIDED BY THE AUTHORITIES HAVING JURISDICTION, WORK AND MATERIALS SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AS JOINTLY PROMULGATED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) AND THE WASHINGTON STATE CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION.

2. THE CONTRACTOR SHALL CALL THE UNDERGROUND SERVICE ALERT ONE-CALL NUMBER 1-800-424-5555 TWO BUSINESS DAYS PRIOR TO EXCAVATION. PRIVATE LOCATES SHALL BE PROVIDED FOR THE ENTIRE PROJECT AREA, INCLUDING INSIDE AND OUTSIDE OF THE BUILDING.

3. INFORMATION ON EXISTING CONDITIONS SHOWN ON THESE PLANS WAS OBTAINED FROM A SURVEY PERFORMED BY COFFMAN ENGINEERS. NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND REQUIRED ELEVATIONS AT THE SUBJECT SITE. VERIFY THE LOCATION AND SIZE OF EXISTING UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION ACTIVITIES, INCLUDING UNDERGROUND AND OVERHEAD UTILITIES, UTILITY STRUCTURES, POINTS OF CONNECTION, AND UTILITY CROSSINGS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR EXCEPTIONS ENCOUNTERED PRIOR TO PROCEEDING. ANY COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION SHALL BE BORNE BY THE CONTRACTOR.

4. THE CONTRACTOR SHALL HAVE A COMPLETE SET OF APPROVED PLANS ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

5. THE DRAWINGS INDICATE LOCATIONS, DIMENSIONS, REFERENCES, AND TYPICAL DETAILS OF CONSTRUCTION. THE DRAWINGS DO NOT INDICATE EVERY CONDITION. WORK NOT FULLY DETAILED SHALL BE OF CONSTRUCTION SIMILAR TO PARTS THAT ARE FULLY DETAILED.

6. THE CONTRACTOR SHALL OBTAIN THE APPROPRIATE APPROVALS AND PERMITS FROM THE AUTHORITIES HAVING JURISDICTION PRIOR TO PROCEEDING WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL COORDINATE WITH THE AUTHORITIES HAVING JURISDICTION TO CONFIRM INSPECTION, TESTING, AND CERTIFICATION REQUIREMENTS.

7. CONSTRUCTION SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG).

8. EXISTING PROPERTY CORNERS AND SURVEY MONUMENTS SHALL BE PROTECTED DURING CONSTRUCTION. ANY DAMAGED OR OBLITERATED CORNERS OR MONUMENTS SHALL BE RE-ESTABLISHED BY A PROFESSIONAL SURVEYOR AT THE CONTRACTOR'S EXPENSE.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS. COORDINATE REQUIREMENTS WITH THE AUTHORITIES HAVING JURISDICTION.

10. SAFETY STANDARDS AND REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND COMPLIED WITH AS SET FORTH BY OSHA.

11. THE CONTRACTOR SHALL HAVE THE APPROPRIATE LICENSES TO PERFORM THE SPECIFIED WORK IN CONFORMANCE WITH THE AUTHORITIES HAVING JURISDICTION.

12. MAINTAIN EXISTING UTILITIES AND PROTECT THEM AGAINST DAMAGE DURING CONSTRUCTION. DO NOT INTERRUPT EXISTING UTILITIES SERVING ADJACENT OCCUPIED OR OPERATING FACILITIES UNLESS AUTHORIZED IN WRITING BY OWNER AND AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES, AS ACCEPTABLE TO OWNER AND AUTHORITIES HAVING JURISDICTION.

13. IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED THAT HAVE NOT BEEN PREVIOUSLY IDENTIFIED, DO NOT DISTURB; IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER AND OWNER.

14. AREAS DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE CONSTRUCTED OR RESTORED TO ORIGINAL CONDITIONS OR BETTER, TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING CONDITIONS PRIOR TO CONSTRUCTION ACTIVITIES AND ANY DAMAGE THAT MAY OCCUR.

15. REMOVE WASTE MATERIALS AND DEBRIS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA-APPROVED LANDFILL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

16. RECORD DRAWINGS NOTING AS-CONSTRUCTED CONDITIONS SHALL BE PROVIDED BY THE CONTRACTOR AT THE END OF CONSTRUCTION.

DEMOLITION NOTES

1. CONTRACTOR SHALL REVIEW PROJECT LIMITS FOR QUANTITY AND TYPE OF STRUCTURES, GROUND COVER AND DEBRIS AT THE TIME OF BIDDING AND SHALL INCORPORATE REMOVALS/DISPOSAL IN THEIR BID.

2. CONTRACTOR SHALL REMOVE ALL WASTE MATERIAL AND DEBRIS FROM SITE AND LEGALLY DISPOSE OF IN SUITABLE LOCATIONS OFFSITE.

3. CONTRACTOR SHALL OBTAIN ALL CONSTRUCTION APPROVALS/PERMITS FROM GOVERNING AGENCIES PRIOR TO ANY CONSTRUCTION ACTIVITY.

4. THE CONTRACTOR SHALL TAKE EFFECTIVE ACTION TO PREVENT THE FORMATION OF ANY AIRBORNE DUST NUISANCE AND SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM FAILURE TO FOLLOW GOVERNING AGENCIES GUIDELINES.

5. CONTRACTOR IS RESPONSIBLE TO REMOVE ANY AND ALL ITEMS NOT OTHERWISE LISTED HEREIN THAT CONFLICT WITH THE CONSTRUCTION OF THE PROJECT. CONTRACTOR SHALL CONTACT ENGINEER IMMEDIATELY TO DETERMINE ANY ITEMS NOT SHOWN ON THE PLANS THAT MUST BE REMOVED. FAILURE TO DO SO DOES NOT RELIEVE CONTRACTOR OF COST RESPONSIBILITY FOR REMOVING ITEMS REQUIRED.

6. IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED THAT HAVE NOT BEEN PREVIOUSLY IDENTIFIED, DO NOT DISTURB; IMMEDIATELY NOTIFY THE OWNER AND ENGINEER.

7. REMOVE OBSTRUCTIONS, TREES, SHRUBS, GRASS AND OTHER VEGETATION TO PERMIT INSTALLATION OF NEW CONSTRUCTION. REMOVAL OF TREES AND SHRUBS SHALL INCLUDE DIGGING OUT STUMPS AND OBSTRUCTIONS AND GRUBBING ROOTS. REMOVAL OF TREES IN AREAS ADJACENT TO TREES THAT ARE TO REMAIN AND BE PROTECTED SHALL BE LIMITED TO TREE REMOVAL AND GRINDING OF STUMP TO 3" BELOW FINISHED GRADE.

8. ALL CONCRETE AND ASPHALT SURFACES INDICATED TO RE REMOVED, SHALL BE SAWCUT.

9. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND MAY NOT HAVE BEEN VERIFIED IN THE FIELD. NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE EXISTENCE AND LOCATION OF UTILITIES SHOWN ON THESE PLANS BY COORDINATING WITH UTILITY COMPANIES AND LOCATING SERVICES IN ADVANCE OF DEMOLITION CONSTRUCTION. ANY COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION SHALL BE BORNE BY THE CONTRACTOR.

10. MAINTAIN EXISTING UTILITIES INDICATED TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING DEMOLITION OPERATIONS. DO NOT INTERRUPT EXISTING UTILITIES SERVING ADJACENT OCCUPIED OR OPERATING FACILITIES UNLESS AUTHORIZED IN WRITING BY OWNER AND GOVERNING AGENCIES. PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES, AS ACCEPTABLE TO OWNER AND PURVEYOR.

11. ALL EXISTING IMPROVEMENTS TO REMAIN THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTOR'S SOLE EXPENSE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DOCUMENT PRIOR DAMAGES.

12. CONTRACTOR SHALL PROTECT ALL EXISTING PROPERTY CORNERS & BENCH MARKS. ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE REMEDIED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.

EROSION & SEDIMENT CONTROL NOTES

1. THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED AS A GUIDELINE IN ORDER TO BEST MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION CONTROL PROBLEMS:
   a) CLEAR AND GRUB SUFFICIENTLY FOR INSTALLATION OF TEMPORARY EROSION AND SEDIMENT CONTROL (ESC) BEST MANAGEMENT PRACTICE MEASURES (BMPS);
   b) INSTALL TEMPORARY ESC BMPS, CONSTRUCTING SEDIMENT TRAPPING BMPS AS ONE OF THE FIRST STEPS PRIOR TO GRADING;
   c) CLEAR, GRUB AND ROUGH GRADE FOR ROADS, TEMPORARY ACCESS POINTS AND UTILITY LOCATIONS;
   d) STABILIZE ROADWAY APPROACHES AND TEMPORARY ACCESS POINTS WITH THE APPROPRIATE CONSTRUCTION ENTRY BMP;
   e) CLEAR, GRUB AND GRADE SUBJECT SITE;
   f) TEMPORARILY STABILIZE, THROUGH RE-VEGETATION OR OTHER APPROPRIATE BMPS, SUBJECT SITE IN SITUATIONS WHERE SUBSTANTIAL CUT OR FILL SLOPES ARE A RESULT OF THE SITE GRADING;
   g) CONSTRUCT ROADS, BUILDINGS, PERMANENT STORMWATER FACILITIES (I.E. INLETS, PONDS, UIC FACILITIES, ETC.);
   h) PROTECT ALL PERMANENT STORMWATER FACILITIES UTILIZING THE APPROPRIATE BMPS;
   i) INSTALL PERMANENT ESC CONTROLS, WHEN APPLICABLE; AND,
   j) REMOVE TEMPORARY ESC CONTROLS WHEN:
      i. PERMANENT ESC CONTROLS, WHEN APPLICABLE, HAVE BEEN COMPLETELY INSTALLED;
      ii. ALL LAND-DISTURBING ACTIVITIES THAT HAVE THE POTENTIAL TO CAUSE EROSION OR SEDIMENTATION PROBLEMS HAVE CEASED; AND,
      iii. VEGETATION HAS BEEN ESTABLISHED IN THE AREAS NOTED AS REQUIRING VEGETATION ON THE ACCEPTED ESC PLAN ON FILE WITH THE LOCAL JURISDICTION.

2. INSPECT ALL ROADWAYS, AT THE END OF EACH DAY, ADJACENT TO THE CONSTRUCTION ACCESS ROUTE. IF IT IS EVIDENT THAT SEDIMENT HAS BEEN TRACKED OFF SITE AND/OR BEYOND THE ROADWAY APPROACH, CLEANING IS REQUIRED.

3. IF SEDIMENT REMOVAL IS NECESSARY PRIOR TO STREET WASHING, IT SHALL BE REMOVED BY SHOVELING OR PICKUP SWEEPING AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

4. IF STREET WASHING IS REQUIRED TO CLEAN SEDIMENT TRACKED OFF SITE, ONCE SEDIMENT HAS BEEN REMOVED, STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON-SITE OR OTHERWISE PREVENTED FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.

5. RESTORE CONSTRUCTION ACCESS ROUTE EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.

6. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICAL.

7. INSPECT SEDIMENT CONTROL BMPS WEEKLY AT A MINIMUM, DAILY DURING A STORM EVENT, AND AFTER ANY DISCHARGE FROM THE SITE (STORMWATER OR NON-STORMWATER). THE INSPECTION FREQUENCY MAY BE REDUCED TO ONCE A MONTH IF THE SITE IS STABILIZED AND INACTIVE.

8. CONTROL FUGITIVE DUST FROM CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE STATE AND/OR LOCAL AIR QUALITY CONTROL AUTHORITIES WITH JURISDICTION OVER THE PROJECT AREA. DO NOT USE WATER WHEN IT MAY DAMAGE ADJACENT CONSTRUCTION OR CREATE HAZARDOUS OR OBJECTIONABLE CONDITIONS, SUCH AS ICE, FLOODING, AND POLLUTION.

9. STABILIZE EXPOSED UNWORKED SOILS (INCLUDING STOCKPILES), WHETHER AT FINAL GRADE OR NOT, WITHIN 10 DAYS DURING THE REGIONAL DRY SEASON (JULY 1 THROUGH SEPTEMBER 30) AND WITHIN 5 DAYS DURING THE REGIONAL WET SEASON (OCTOBER 1 THROUGH JUNE 30). SOILS MUST BE STABILIZED AT THE END OF A SHIFT BEFORE A HOLIDAY WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. THIS TIME LIMIT MAY ONLY BE ADJUSTED BY A LOCAL JURISDICTION WITH A "QUALIFIED LOCAL PROGRAM," IF IT CAN BE DEMONSTRATED THAT THE RECENT PRECIPITATION JUSTIFIES A DIFFERENT STANDARD AND MEETS THE REQUIREMENTS SET FORTH IN THE CONSTRUCTION STORMWATER GENERAL PERMIT.

10. PROTECT INLETS, DRYWELLS, CATCH BASINS AND OTHER STORMWATER MANAGEMENT FACILITIES FROM SEDIMENT, WHETHER OR NOT FACILITIES ARE OPERABLE.

11. KEEP ROADS ADJACENT TO INLETS CLEAN.

12. INSPECT INLETS WEEKLY AT A MINIMUM AND DAILY DURING STORM EVENTS.

13. CONSTRUCT STORMWATER CONTROL FACILITIES (DETENTION/RETENTION STORAGE POND OR SWALES) BEFORE GRADING BEGINS. THESE FACILITIES SHALL BE OPERATIONAL BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.

14. STOCKPILE MATERIALS (SUCH AS TOPSOIL) ON SITE, KEEPING OFF OF ROADWAY AND SIDEWALKS.

15. COVER, CONTAIN AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCT, AND NONINERT WASTES PRESENT ON SITE FROM VANDALISM (SEE CHAPTER 173-304 WAC FOR THE DEFINITION OF INERT WASTE), USE SECONDARY CONTAINMENT FOR ON-SITE FUELING TANKS.

16. CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM REPAIRS, SOLVENT AND DE-GREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. IF RAINING OVER EQUIPMENT OR VEHICLE, PERFORM EMERGENCY REPAIRS ON SITE USING TEMPORARY PLASTIC BENEATH THE VEHICLE.

17. CONDUCT APPLICATION OF AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, IN SUCH A MANNER, AND AT APPLICATION RATES, THAT INHIBITS THE LOSS OF CHEMICALS INTO STORMWATER RUNOFF FACILITIES. AMEND MANUFACTURER'S RECOMMENDED APPLICATION RATES AND PROCEDURES TO MEET THIS REQUIREMENT, IF NECESSARY.

18. INSPECT ON A REGULAR BASIS (AT A MINIMUM WEEKLY, AND DAILY DURING/AFTER A RUNOFF PRODUCING STORM EVENT) AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPS TO ENSURE SUCCESSFUL PERFORMANCE OF THE BMPS. NOTE THAT INLET PROTECTION DEVICES SHALL BE CLEANED OR REMOVED AND REPLACED BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE.

19. REMOVE TEMPORARY ESC BMPS WITHIN 30 DAYS AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. PERMANENTLY STABILIZE AREAS THAT ARE DISTURBED DURING THE REMOVAL PROCESS.

20. PROVIDE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT SOIL EROSION AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES, ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY, INCLUDING OBTAINING THE APPROPRIATE PERMITS AND APPROVALS.

21. EROSION CONTROL MEASURES IN ADDITION TO THOSE INDICATED AS PART OF THIS PLAN MAY BE REQUIRED DUE TO UNFORESEEN CONDITIONS, IF THE MEASURES DO NOT FUNCTION AS INTENDED, OR IF THE AUTHORITIES HAVING JURISDICTION DETERMINE INDICATED MEASURES ARE INADEQUATE.

22. FILTER FENCE SHALL BE USED TO AID IN CONTAINING ANY SEDIMENT ON THE SITE DURING CONSTRUCTION. STABILIZED CONSTRUCTION ENTRANCES SHALL BE USED AT POINTS OF INGRESS AND EGRESS FOR CONSTRUCTION VEHICLES. STORM DRAIN INLET PROTECTION SHALL BE USED ON ALL STORM DRAIN STRUCTURES, INCLUDING CATCH BASINS AND DRYWELLS. THE CONTRACTOR SHALL KEEP THE AREAS ADJACENT TO THE SITE INCLUDING ROADWAYS AND PARKING LOTS FREE FROM DEBRIS. REFER TO THE EROSION AND SEDIMENT CONTROL MEASURE DETAILS FOR ADDITIONAL INFORMATION.

23. PROVIDE A DESIGNATED, POSTED CONCRETE WASHOUT AREA. THE CONCRETE WASHOUT SHALL NOT BE ALLOWED TO DRAIN OFF THE SITE OR INTO ANY EXISTING OR FUTURE STORM DRAINAGE FACILITIES. HARDENED CONCRETE WASHOUT SHALL BE BROKEN UP AND REMOVED FROM THE SITE.

24. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

25. APPLY A DRY-LAND SEED MIX TO ALL SOILS EXPOSED OR DISTURBED BY CONSTRUCTION ACTIVITIES. THE DISTURBED AREAS SHALL BE HYDROSEEDED USING A STANDARD HYDROSEED APPLICATION PER WSDOT STANDARD SPECIFICATIONS, INCLUDING WOOD FIBER MULCH, GUAR GUM TACKIFIER, AND SLOW RELEASE FERTILIZER. PRIOR TO APPLYING THE HYDROSEED, THE CONTRACTOR SHALL VERTICAL TRACK PERPENDICULAR TO THE CONTOURS TO SCARIFY THE SOIL ENOUGH TO PROVIDE PLACES FOR THE SEED TO STICK/ESTABLISH TO ALLOW FOR BETTER GERMINATION. APPLY SEEDING WITHIN FIVE (5) DAYS AFTER FINISHED GRADING IS COMPLETE. EROSION CONTROL BLANKETS MAY BE USED WHERE SEEDING IS NOT FEASIBLE.

EARTHWORK & GRADING NOTES

1. SITE PREPARATION, GRADING, EXCAVATION AND FILL REQUIREMENTS BELOW THE PROPOSED IMPROVEMENTS, EMBANKMENTS, AND UTILITY TRENCHING SHALL BE COMPLETED IN CONFORMANCE WITH WSDOT STANDARD SPECIFICATIONS.

2. EXAMINE EXPOSED SUBGRADES AND BASE SURFACES FOR COMPLIANCE WITH REQUIREMENTS FOR DIMENSIONAL, GRADING, AND ELEVATION TOLERANCES. PREVENT SURFACE WATER AND GROUNDWATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES AND BASE SURFACES, AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. PROTECT SUBGRADES AND BASE SURFACES FROM SOFTENING, UNDERMINING, WASHOUT, DAMAGE BY RAIN OR WATER ACCUMULATION, AND AGAINST FREEZING TEMPERATURES AND FROST.

3. SPOT ELEVATIONS ARE FOR FINISH GRADE UNLESS OTHERWISE NOTED.

4. UNLESS ELEVATIONS AND/OR CONTOURS ARE OTHERWISE SHOWN, NEW FINISH GRADE SURFACES SHALL BE PLACED TO ALLOW FOR POSITIVE DRAINAGE TO RUNOFF COLLECTION DEVICES OR FACILITIES. MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDINGS. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.

5. GROUNDWATER OR UNANTICIPATED SUBSURFACE CONDITIONS SHALL BE REPORTED TO THE ENGINEER FOR ASSESSMENT AND RECOMMENDATIONS.

6. COMPACTION EFFORTS AND MASS GRADING SHALL BE MONITORED AND TESTED BY AN EXPERIENCED SOILS TECHNICIAN, UNDER THE SUPERVISION OF A LICENSED GEOTECHNICAL ENGINEER REPRESENTING THE OWNER.

7. GEOENGINEERS CONDUCTED THE IDENTIFICATION WITH SUBSEQUENT REVIEW BY BUDDINGER AND ADDITIONAL BORINGS FOR IDENTIFICATION OF ROCK. BUDDINGER WILL BE THE OWNERS REPRESENTATIVE ON SITE DURING CONSTRUCTION VERIFYING ALL SOIL CONTAMINATION REMOVAL, INSTALLATION OF SHORING, AND BACKFILL. CONTRACTOR TO COORDINATE WITH THE OWNER AND BUDDINGER. SEE ENVIRONMENTAL NOTES BELOW.

PAVING NOTES

1. DO NOT APPLY PAVEMENT MATERIALS IF SUBGRADE IS WET OR EXCESSIVELY DAMP, OR IF RAIN IS IMMINENT OR EXPECTED BEFORE TIME REQUIRED FOR ADEQUATE CURE. SURFACE AND AIR TEMPERATURES SHALL CONFORM TO REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS.

2. COMPLY WITH WSDOT STANDARD SPECIFICATION 5-05 AND ACI 301 REQUIREMENTS FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CEMENT CONCRETE PAVEMENT.

3. APPLY PAVEMENT MARKING MATERIALS TO CLEAN, DRY PAVEMENT SURFACES ACCORDING TO WSDOT STANDARD SPECIFICATION 8-22. PAVEMENT MARKINGS SHALL COMPLY WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

ENVIRONMENTAL NOTES

1. CONTRACTOR SHALL REVIEW AND ADHERE TO THE RECOMMENDATIONS IN THE "PHASE I ENVIRONMENT SITE ASSESSMENT (REVISED)" DATED AUGUST 6, 2014 AND "PHASE II ENVIRONMENT SITE ASSESSMENT" DATED AUGUST 18, 2014 BY GEOENGINEERS, INC. BOTH REPORTS WERE PERFORMED FOR TAX PARCEL 35182.0034.

2. THE PHASE II REPORT IDENTIFIES FOUND SOILS THAT EXCEED THE MODEL TOXICS CONTROL ACT (MTCA) CLEAN UP LEVEL AT A DEPTH OF APPROXIMATELY 5 FEET IN TEST PIT 1. DUE TO THIS LEVEL FOUND, CONTINUOUS ENVIRONMENTAL SPECIAL INSPECTION IS REQUIRED DURING THE GRADING AND ACCESS ROADWAY CONSTRUCTION, AS WELL AS PERIODIC SAMPLING AND TESTING. THIS SERVICE WILL BE PROVIDED BY THE OWNER (STA).

3. RECOMMENDED CONTRACTOR PRECAUTIONS DURING CONSTRUCTION INCLUDE IMPLEMENTING APPROPRIATE HEALTH AND SAFETY CONTROLS TO REDUCE POTENTIAL FOR WORKER CONTACT WITH ON-SITE SOIL, AND APPLYING WATER TO ELEVATE SOIL MOISTURE CONTENT AND REDUCE POTENTIAL FOR FUGITIVE DUST AND PARTICULATES DURING SITE EARTHWORK OPERATIONS.

4. EXCESS EXISTING FILL SOIL FROM EXCAVATIONS REQUIRED FROM CONSTRUCTION OF THE PROPOSED USTs AND VAULTS, SHOULD BE TEMPORARILY STOCKPILED ON SITE AND TESTED FOR cPAHS. IF LABORATORY ANALYSES INDICATES CONCENTRATIONS OF cPAHs ABOVE THE APPLICABLE MTCA CUL, THE STOCKPILED SOIL WILL REQUIRE DISPOSAL AT AN APPROPRIATELY CONTROLLED LANDFILL. THE NATURAL DEPOSITS OF SAND AND GRAVEL, IF EXCAVATED AND OF A VOLUME THAT EXCEEDS WHAT IS REQUIRED FOR BACKFILL ON SITE, NEED NOT BE STOCKPILED OR TESTED, BUT MAY BE DIRECTLY HAULED OFF SITE FOR PROPER DISPOSAL.

5. THE EARTHWORK CONTRACTOR SHOULD BE PREPARED TO EXCAVATE AND REMOVE BASALT ROCK AS PART OF SITE EXCAVATION ACTIVITIES. THE GEOTECHNICAL ENGINEER ESTIMATES THE UPPER PORTION OF THE ROCK COULD BE HIGHLY FRACTURED BUT THE NUMBER OF FRACTURES PER FOOT SHOULD GENERALLY DECREASE WITH DEPTH, INCREASING THE DIFFICULTY TO RIP THE ROCK. REFER TO ENVIRONMENTAL NOTE 1 FOR MORE INFORMATION.

CITY OF SPOKANE WATER NOTES

1. ON-PROPERTY SITE WATER LINES NEED TO BE INSPECTED BY CITY WATER PRIOR TO BACKFILL. INSPECTION CAN BE SCHEDULED AFTER METER PERMIT FEES ARE PAID.

2. MUST PROVIDE PASSING TESTING REPORTS FOR ALL BACKFLOW ASSEMBLIES (E.G. IRRIGATION AND FIRE SYSTEMS) TO THE CITY OF SPOKANE WATER DEPARTMENT. SEND ALL REPORTS TO watercrossconnection@spokanecity.org BEFORE SITE SURVEY/INSPECTION, AND ALSO BEFORE CERTIFICATE OF OCCUPANCY CAN BE ISSUED.

3. COORDINATE A SITE SURVEY/INSPECTION WITH THE CITY WATER DEPARTMENT (AFTER BACKFLOW DEVICES HAVE BEEN TESTED) NO LESS THAN 48 HOURS PRIOR TO REQUESTING CERTIFICATE OF OCCUPANCY. CROSS CONNECTION LINE TO SCHEDULE A WATER USE SURVEY/INSPECTION IS 509-625-7969.

4. CITY OF SPOKANE NOW REQUIRES A MANDATORY CITY RPBA AND FLOW METER ASSEMBLY FOR ALL FIRE HYDRANT WATER USAGE (E.G. IF NEEDED FOR CONSTRUCTION DUST CONTROL, ETC.). THIS HYDRANT PROGRAM REQUIRES AN ANNUAL PERMIT FEE, CONSUMPTION BILLING FOR ACTUAL USE, AND DEPOSIT FOR THE RPBA AND METER ASSEMBLY TO BE LEASED FROM THE CITY. PLEASE CALL 311 OR CITY WATER DEPARTMENT AT 509-625-7800 FOR MORE INFO. VIOLATIONS FOR NOT USING CITY LEASED RPBA/METER ASSEMBLY ON THE HYDRANT WATER USAGE *WILL RESULT IN MONETARY PENALTIES* STARTING 2021.

5. IF ANY WATER SYSTEM COMPONENTS ARE IMPACTED, SHALL MEET CURRENT BACKFLOW STANDARDS PER WAC 246-290-490 AND FOLLOW CITY OF SPOKANE WATER DEPARTMENT RULES AND REGULATIONS FOR WATER SERVICE INSTALLATIONS, ONLINE AT: https://spokanewater.org AND CLICK ON LOWER RIGHT BELOW "RELATED LINKS".

COFFMAN ENGINEERS
10 N. Post Street, Suite 500
Spokane, WA 99201
ph 509.328.2994
www.coffman.com

STAMP

THOMAS L. ARNOLD — STATE OF WASHINGTON — 25670 — 12/31/21 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

SHEET TITLE: **GENERAL CIVIL NOTES**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION:
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

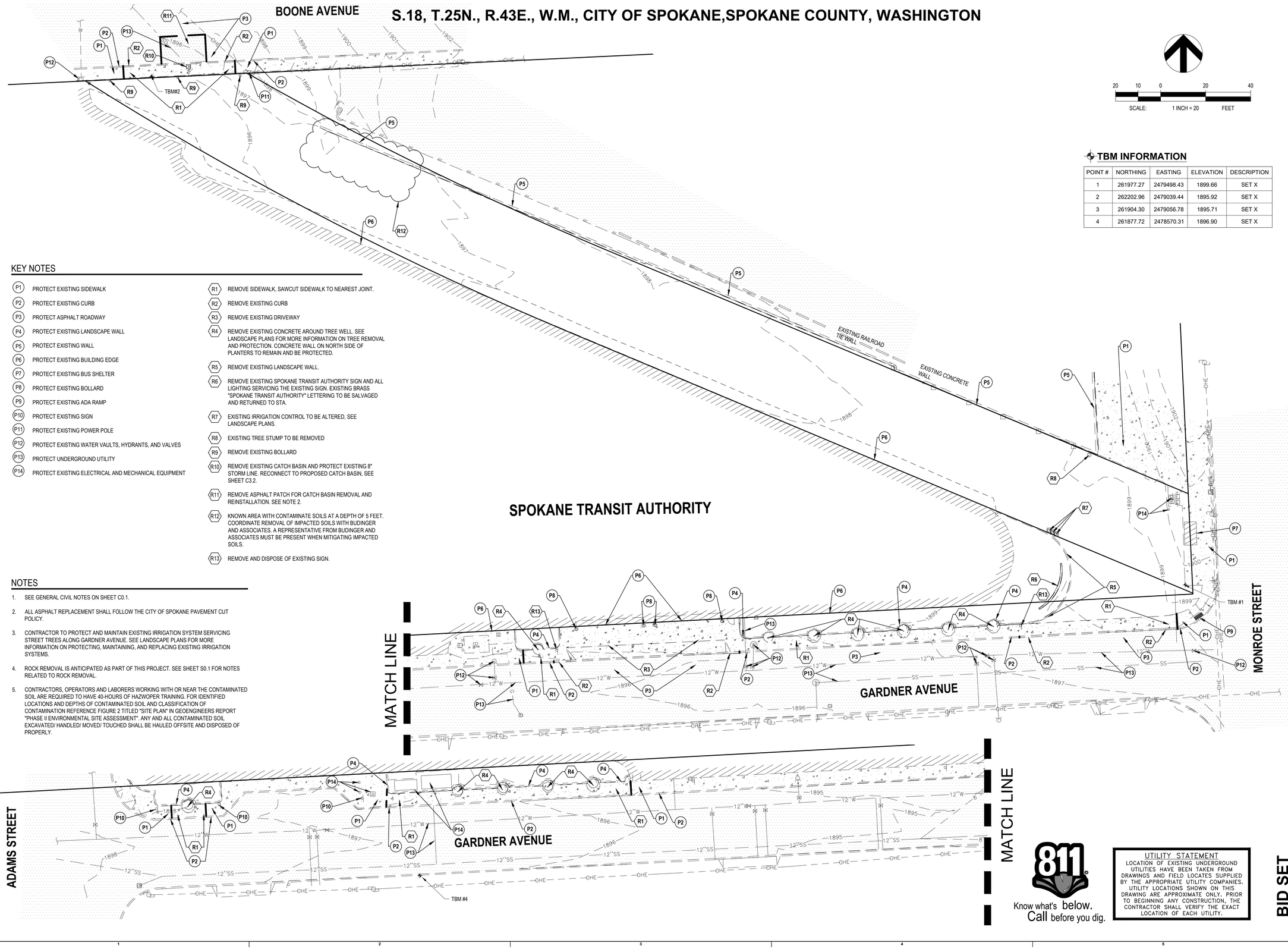
No.	Date	By
1	12/10/21	BLW

BID SET

PROJ. NO. 2021-10628
DRAWN KCM
CHECKED CBM
DATE 12/10/2021

SHEET: C0.1

S.18, T.25N., R.43E., W.M., CITY OF SPOKANE,SPOKANE COUNTY, WASHINGTON



KEY NOTES

- P1 PROTECT EXISTING SIDEWALK
- P2 PROTECT EXISTING CURB
- P3 PROTECT ASPHALT ROADWAY
- P4 PROTECT EXISTING LANDSCAPE WALL
- P5 PROTECT EXISTING WALL
- P6 PROTECT EXISTING BUILDING EDGE
- P7 PROTECT EXISTING BUS SHELTER
- P8 PROTECT EXISTING BOLLARD
- P9 PROTECT EXISTING ADA RAMP
- P10 PROTECT EXISTING SIGN
- P11 PROTECT EXISTING POWER POLE
- P12 PROTECT EXISTING WATER VAULTS, HYDRANTS, AND VALVES
- P13 PROTECT UNDERGROUND UTILITY
- P14 PROTECT EXISTING ELECTRICAL AND MECHANICAL EQUIPMENT

- R1 REMOVE SIDEWALK, SAWCUT SIDEWALK TO NEAREST JOINT.
- R2 REMOVE EXISTING CURB
- R3 REMOVE EXISTING DRIVEWAY
- R4 REMOVE EXISTING CONCRETE AROUND TREE WELL. SEE LANDSCAPE PLANS FOR MORE INFORMATION ON TREE REMOVAL AND PROTECTION. CONCRETE WALL ON NORTH SIDE OF PLANTERS TO REMAIN AND BE PROTECTED.
- R5 REMOVE EXISTING LANDSCAPE WALL.
- R6 REMOVE EXISTING SPOKANE TRANSIT AUTHORITY SIGN AND ALL LIGHTING SERVICING THE EXISTING SIGN. EXISTING BRASS "SPOKANE TRANSIT AUTHORITY" LETTERING TO BE SALVAGED AND RETURNED TO STA.
- R7 EXISTING IRRIGATION CONTROL TO BE ALTERED, SEE LANDSCAPE PLANS.
- R8 EXISTING TREE STUMP TO BE REMOVED
- R9 REMOVE EXISTING BOLLARD
- R10 REMOVE EXISTING CATCH BASIN AND PROTECT EXISTING 6" STORM LINE. RECONNECT TO PROPOSED CATCH BASIN, SEE SHEET C3.2.
- R11 REMOVE ASPHALT PATCH FOR CATCH BASIN REMOVAL AND REINSTALLATION. SEE NOTE 2.
- R12 KNOWN AREA WITH CONTAMINATE SOILS AT A DEPTH OF 5 FEET. COORDINATE REMOVAL OF IMPACTED SOILS WITH BUDINGER AND ASSOCIATES. A REPRESENTATIVE FROM BUDINGER AND ASSOCIATES MUST BE PRESENT WHEN MITIGATING IMPACTED SOILS.
- R13 REMOVE AND DISPOSE OF EXISTING SIGN.

NOTES

1. SEE GENERAL CIVIL NOTES ON SHEET C0.1.
2. ALL ASPHALT REPLACEMENT SHALL FOLLOW THE CITY OF SPOKANE PAVEMENT CUT POLICY.
3. CONTRACTOR TO PROTECT AND MAINTAIN EXISTING IRRIGATION SYSTEM SERVICING STREET TREES ALONG GARDNER AVENUE. SEE LANDSCAPE PLANS FOR MORE INFORMATION ON PROTECTING, MAINTAINING, AND REPLACING EXISTING IRRIGATION SYSTEMS.
4. ROCK REMOVAL IS ANTICIPATED AS PART OF THIS PROJECT. SEE SHEET S0.1 FOR NOTES RELATED TO ROCK REMOVAL.
5. CONTRACTORS, OPERATORS AND LABORERS WORKING WITH OR NEAR THE CONTAMINATED SOIL ARE REQUIRED TO HAVE 40-HOURS OF HAZWOPER TRAINING. FOR IDENTIFIED LOCATIONS AND DEPTHS OF CONTAMINATED SOIL AND CLASSIFICATION OF CONTAMINATION REFERENCE FIGURE 2 TITLED "SITE PLAN" IN GEOENGINEERS REPORT "PHASE II ENVIRONMENTAL SITE ASSESSMENT". ANY AND ALL CONTAMINATED SOIL EXCAVATED/ HANDLED/ MOVED/ TOUCHED SHALL BE HAULED OFFSITE AND DISPOSED OF PROPERLY.

SCALE: 1 INCH = 20 FEET

TBM INFORMATION

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	261977.27	2479498.43	1899.66	SET X
2	262202.96	2479039.44	1895.92	SET X
3	261904.30	2479056.78	1895.71	SET X
4	261877.72	2478570.31	1896.90	SET X

811 Know what's below. Call before you dig.

UTILITY STATEMENT
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.

COFFMAN ENGINEERS
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ph 509.328.2994
www.coffman.com

STAMP
THOMAS L. ARNOLD — STATE OF WASHINGTON — 25670 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

SHEET TITLE: **DEMOLITION PLAN**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

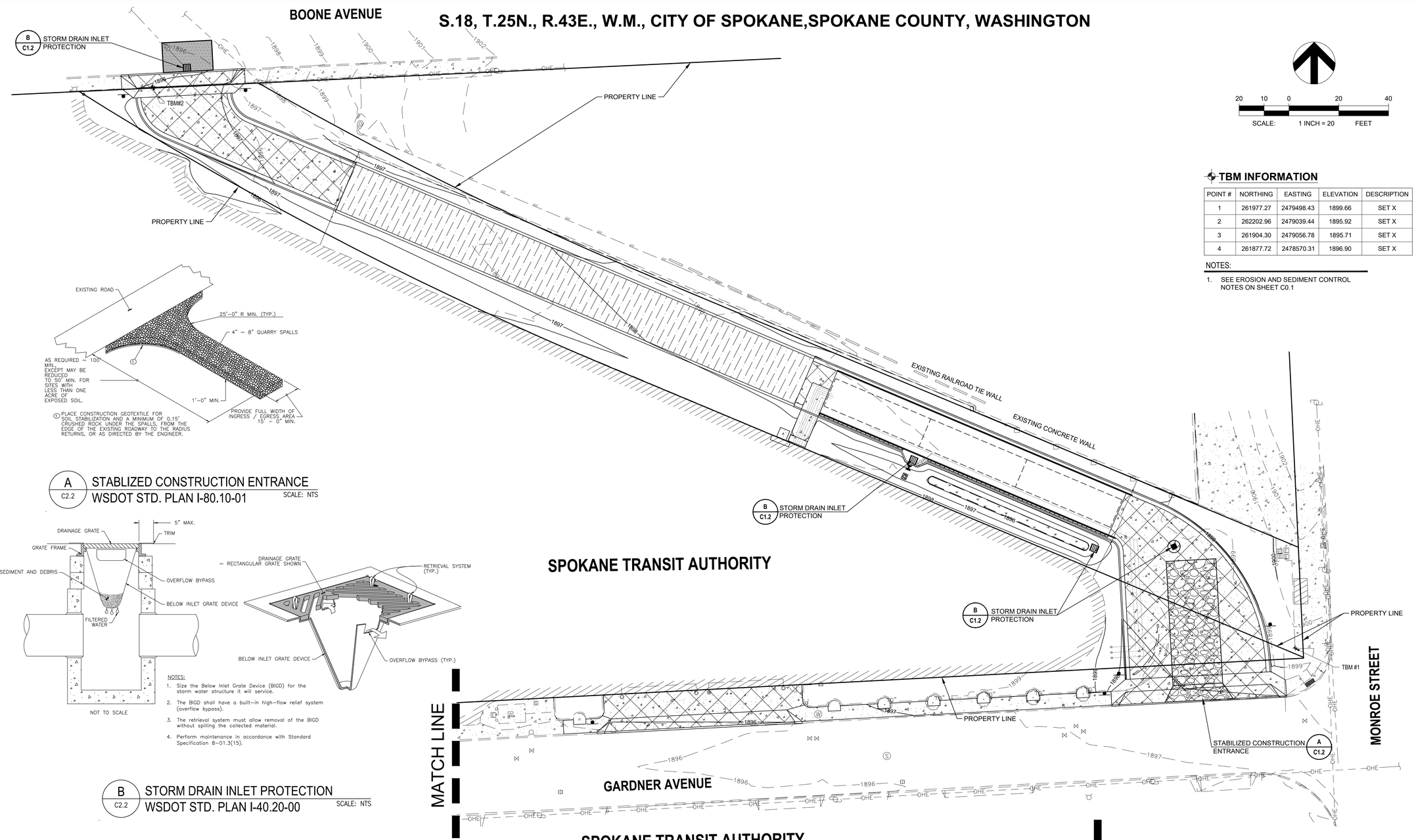
No.	Date	By

PROJ. NO. 2021-10628
DRAWN KCM
CHECKED CBM
DATE 12/10/2021

BID SET

SHEET C1.1

S.18, T.25N., R.43E., W.M., CITY OF SPOKANE,SPOKANE COUNTY, WASHINGTON



A C2.2 STABLIZED CONSTRUCTION ENTRANCE
WSDOT STD. PLAN I-80.10-01 SCALE: NTS

NOTES:
1. Size the Below Inlet Grate Device (BIGD) for the storm water structure it will service.
2. The BIGD shall have a built-in high-flow relief system (overflow bypass).
3. The retrieval system must allow removal of the BIGD without spilling the collected material.
4. Perform maintenance in accordance with Standard Specification 8-01.3(15).

B C2.2 STORM DRAIN INLET PROTECTION
WSDOT STD. PLAN I-40.20-00 SCALE: NTS

20 10 0 20 40
SCALE: 1 INCH = 20 FEET

TBM INFORMATION

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	261977.27	2479498.43	1899.66	SET X
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4	261877.72	2478570.31	1896.90	SET X

NOTES:
1. SEE EROSION AND SEDIMENT CONTROL NOTES ON SHEET C0.1

Know what's below. Call before you dig.

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THOMAS L. ARNOLD — STATE OF WASHINGTON — 25670 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
STAMP

SHEET TITLE: EROSION AND SEDIMENT CONTROL PLAN

PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

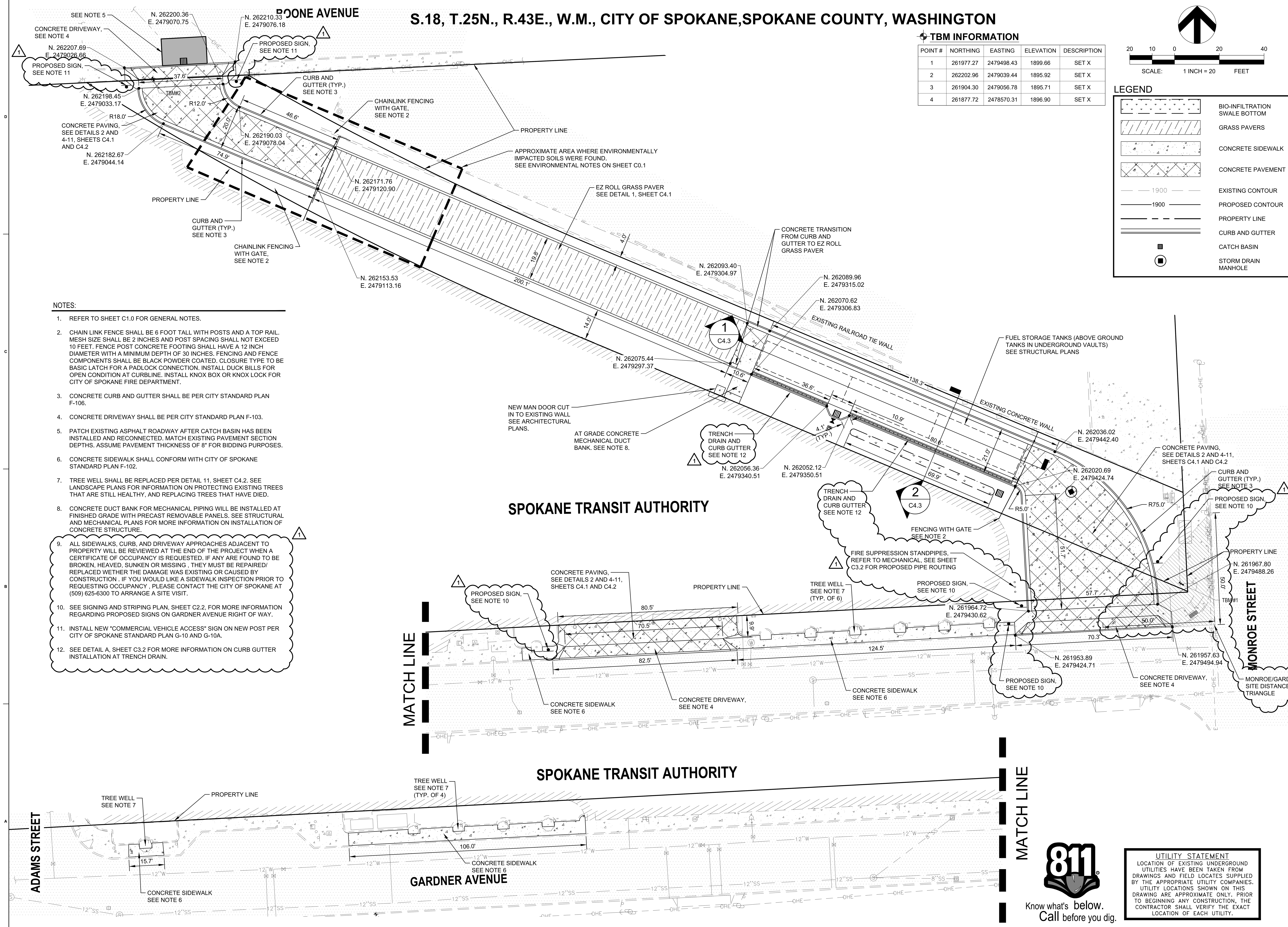
No.	Date	By

PROJ. NO.	2021-10628
DRAWN	KCM
CHECKED	CBM
DATE	12/10/2021

BID SET

SHEET C1.2

S.18, T.25N., R.43E., W.M., CITY OF SPOKANE,SPOKANE COUNTY, WASHINGTON



TBM INFORMATION

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	261977.27	2479498.43	1899.66	SET X
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4	261877.72	2478570.31	1896.90	SET X

SCALE: 1 INCH = 20 FEET (20 10 0 20 40)

LEGEND

- BIO-INFILTRATION SWALE BOTTOM
- GRASS PAVERS
- CONCRETE SIDEWALK
- CONCRETE PAVEMENT
- 1900 EXISTING CONTOUR
- 1900 PROPOSED CONTOUR
- PROPERTY LINE
- CURB AND GUTTER
- CATCH BASIN
- STORM DRAIN MANHOLE

NOTES:

1. REFER TO SHEET C1.0 FOR GENERAL NOTES.
2. CHAIN LINK FENCE SHALL BE 6 FOOT TALL WITH POSTS AND A TOP RAIL. MESH SIZE SHALL BE 2 INCHES AND POST SPACING SHALL NOT EXCEED 10 FEET. FENCE POST CONCRETE FOOTING SHALL HAVE A 12 INCH DIAMETER WITH A MINIMUM DEPTH OF 30 INCHES. FENCING AND FENCE COMPONENTS SHALL BE BLACK POWDER COATED. CLOSURE TYPE TO BE BASIC LATCH FOR A PADLOCK CONNECTION. INSTALL DUCK BILLS FOR OPEN CONDITION AT CURBLINE. INSTALL KNOX BOX OR KNOX LOCK FOR CITY OF SPOKANE FIRE DEPARTMENT.
3. CONCRETE CURB AND GUTTER SHALL BE PER CITY STANDARD PLAN F-106.
4. CONCRETE DRIVEWAY SHALL BE PER CITY STANDARD PLAN F-103.
5. PATCH EXISTING ASPHALT ROADWAY AFTER CATCH BASIN HAS BEEN INSTALLED AND RECONNECTED. MATCH EXISTING PAVEMENT SECTION DEPTHS. ASSUME PAVEMENT THICKNESS OF 8" FOR BIDDING PURPOSES.
6. CONCRETE SIDEWALK SHALL CONFORM WITH CITY OF SPOKANE STANDARD PLAN F-102.
7. TREE WELL SHALL BE REPLACED PER DETAIL 11, SHEET C4.2. SEE LANDSCAPE PLANS FOR INFORMATION ON PROTECTING EXISTING TREES THAT ARE STILL HEALTHY, AND REPLACING TREES THAT HAVE DIED.
8. CONCRETE DUCT BANK FOR MECHANICAL PIPING WILL BE INSTALLED AT FINISHED GRADE WITH PRECAST REMOVABLE PANELS. SEE STRUCTURAL AND MECHANICAL PLANS FOR MORE INFORMATION ON INSTALLATION OF CONCRETE STRUCTURE.
9. ALL SIDEWALKS, CURB, AND DRIVEWAY APPROACHES ADJACENT TO PROPERTY WILL BE REVIEWED AT THE END OF THE PROJECT WHEN A CERTIFICATE OF OCCUPANCY IS REQUESTED. IF ANY ARE FOUND TO BE BROKEN, HEAVED, SUNKEN OR MISSING , THEY MUST BE REPAIRED/ REPLACED WETHER THE DAMAGE WAS EXISTING OR CAUSED BY CONSTRUCTION . IF YOU WOULD LIKE A SIDEWALK INSPECTION PRIOR TO REQUESTING OCCUPANCY , PLEASE CONTACT THE CITY OF SPOKANE AT (509) 625-6300 TO ARRANGE A SITE VISIT.
10. SEE SIGNING AND STRIPING PLAN, SHEET C2.2, FOR MORE INFORMATION REGARDING PROPOSED SIGNS ON GARDNER AVENUE RIGHT OF WAY.
11. INSTALL NEW "COMMERCIAL VEHICLE ACCESS" SIGN ON NEW POST PER CITY OF SPOKANE STANDARD PLAN G-10 AND G-10A.
12. SEE DETAIL A, SHEET C3.2 FOR MORE INFORMATION ON CURB GUTTER INSTALLATION AT TRENCH DRAIN.

811 Know what's below. Call before you dig.

UTILITY STATEMENT
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.

COFFMAN ENGINEERS
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Spokane, WA 99201
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www.coffman.com

STAMP: THOMAS L. ARNOLD, STATE OF WASHINGTON, STRUCTURAL ENGINEER, PROFESSIONAL ENGINEER, 25670, 12/13/21

SHEET TITLE: CIVIL SITE PLAN

PROJECT NAME & ADDRESS: FUELING FACILITY, 1229 W. Boone Avenue, Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority, 1230 W. Boone Avenue, Spokane, Washington 99201

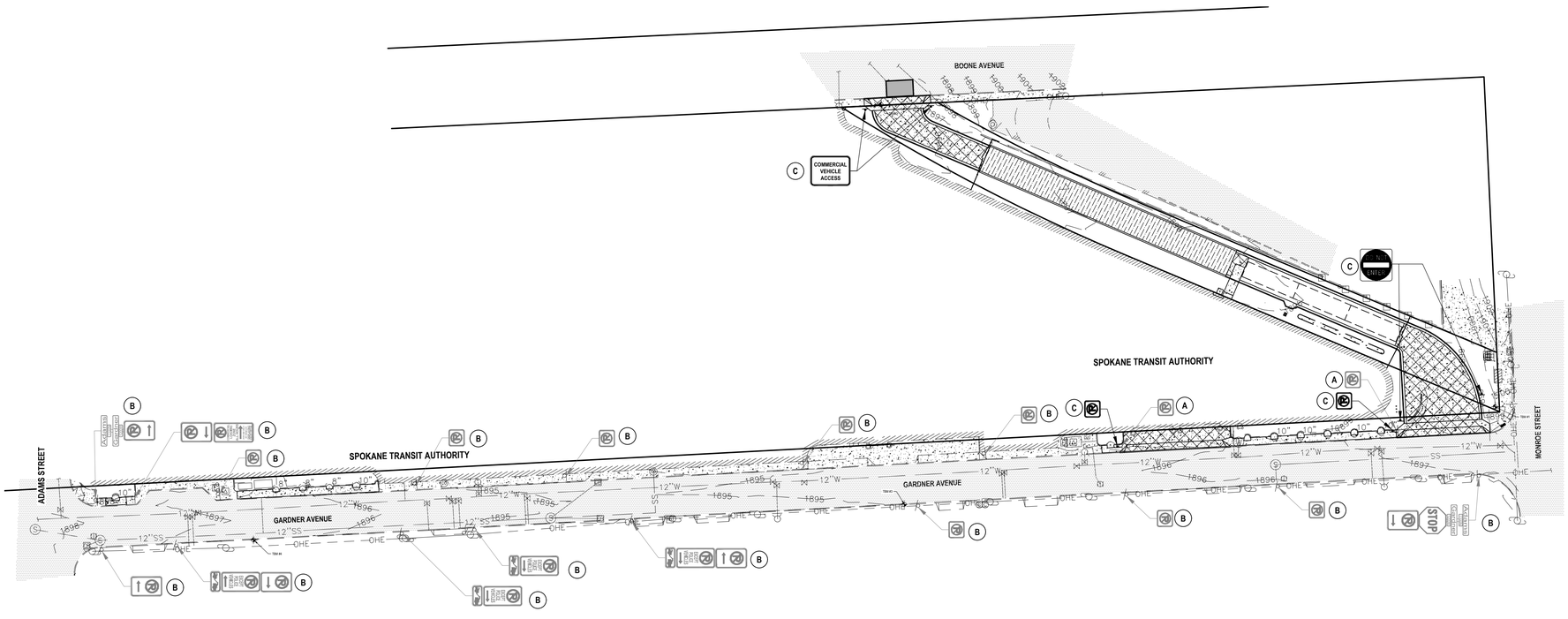
REVISIONS		
No.	Date	By
1	12/10/21	BLW

PROJ. NO.	2021-10628
DRAWN	KCM
CHECKED	CBM
DATE	12/10/2021

BID SET

SHEET C2.1

S.18, T.25N., R.43E., W.M., CITY OF SPOKANE,SPOKANE COUNTY, WASHINGTON



SCALE: 1 INCH = 20 FEET

LEGEND

- BIO-INFILTRATION SWALE BOTTOM
- GRASS PAVERS
- CONCRETE SIDEWALK
- CONCRETE PAVEMENT

TBM INFORMATION

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	261977.27	2479498.43	1899.66	SET X
2	262202.96	2479039.44	1895.92	SET X
3	261904.30	2479056.78	1895.71	SET X
4	261877.72	2478570.31	1896.90	SET X

NOTES

1. REFER TO SHEET C0.1 FOR GENERAL NOTES.
2. PUBLIC RIGHT OF WAY SIGNING AND STRIPING NOTES:
   - A. A SPEC DRAWING SHALL BE SUBMITTED FOR APPROVAL, PRIOR TO MANUFACTURE.
   - B. MANUFACTURES SIGNS SHALL BE PRESENTED FOR INSPECTION, PRIOR TO INSTALLATION, TO THE CITY OF SPOKANE TRAFFIC SIGN AND MARKS SUPERVISOR AT 901 N. NELSON ST.
   - C. AN APPOINTMENT IS NECESSARY 509-232-8803.
   - D. STRIPING TO BE REMOVED, AND/OR REPLACED, SHALL BE REMOVED BY WATER BLASTING.
   - E. AT THE TIME OF INSTALLATION, ALL SIGNAGE AND STRIPING WITHIN THE RIGHT-OF-WAY SHALL BE COMPLETED ACCORDING TO THE MOST UP TO DATE CITY OF SPOKANE STANDARDS AND SPECIFICATIONS.
   - F. TRAFFIC SIGNS REMOVED DURING ANY PHASE OF THE CONSTRUCTION PROCESS ARE THE CONTRACTOR'S PROPERTY AND ARE TO BE DISPOSED OF BY CONTRACTOR. THESE SIGNS SHALL **NOT** BE REUSED.

KEY NOTES

- (A) REMOVE AND DISPOSE OF EXISTING SIGN, SIGN POST AND BASE.
- (B) NO WORK AS PART OF THIS PROJECT.
- (C) INSTALL NEW SIGN AND/OR POST PER CITY OF SPOKANE STANDARDS G-10C AND G-22.

811 Know what's below. Call before you dig.

UTILITY STATEMENT

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THOMAS L. ARNOLD — STATE OF WASHINGTON — 25670 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

STAMP

SHEET TITLE: **SIGNING AND STRIPING PLAN**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

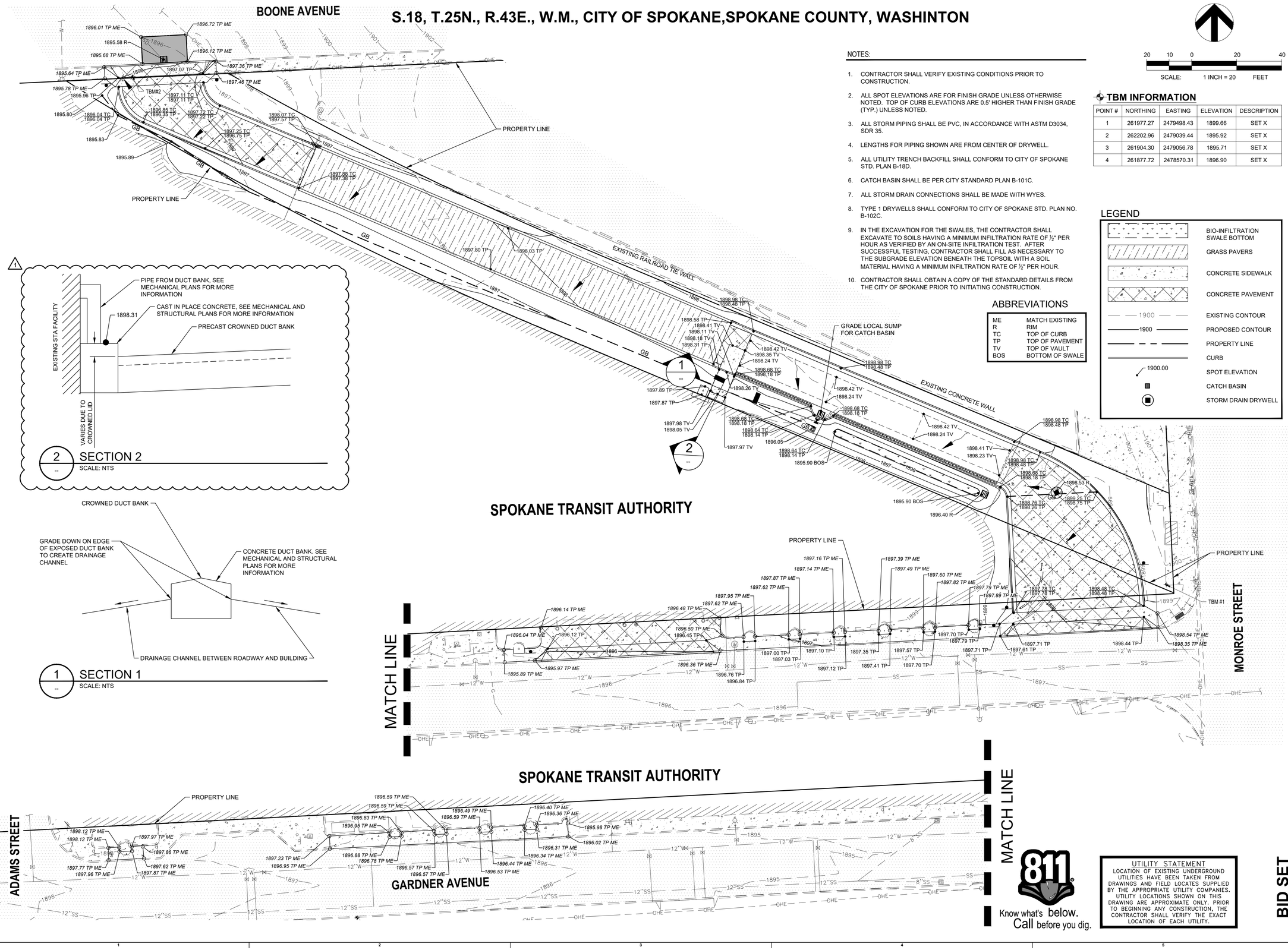
No.	Date	By
1	12/10/21	BLW

BID SET

PROJ. NO.	2021-10628
DRAWN	KCM
CHECKED	CBM
DATE	12/10/2021

SHEET: 1 C2.2

S.18, T.25N., R.43E., W.M., CITY OF SPOKANE,SPOKANE COUNTY, WASHINTON



NOTES:

1. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
2. ALL SPOT ELEVATIONS ARE FOR FINISH GRADE UNLESS OTHERWISE NOTED. TOP OF CURB ELEVATIONS ARE 0.5' HIGHER THAN FINISH GRADE (TYP.) UNLESS NOTED.
3. ALL STORM PIPING SHALL BE PVC, IN ACCORDANCE WITH ASTM D3034, SDR 35.
4. LENGTHS FOR PIPING SHOWN ARE FROM CENTER OF DRYWELL.
5. ALL UTILITY TRENCH BACKFILL SHALL CONFORM TO CITY OF SPOKANE STD. PLAN B-18D.
6. CATCH BASIN SHALL BE PER CITY STANDARD PLAN B-101C.
7. ALL STORM DRAIN CONNECTIONS SHALL BE MADE WITH WYES.
8. TYPE 1 DRYWELLS SHALL CONFORM TO CITY OF SPOKANE STD. PLAN NO. B-102C.
9. IN THE EXCAVATION FOR THE SWALES, THE CONTRACTOR SHALL EXCAVATE TO SOILS HAVING A MINIMUM INFILTRATION RATE OF ½" PER HOUR AS VERIFIED BY AN ON-SITE INFILTRATION TEST. AFTER SUCCESSFUL TESTING, CONTRACTOR SHALL FILL AS NECESSARY TO THE SUBGRADE ELEVATION BENEATH THE TOPSOIL WITH A SOIL MATERIAL HAVING A MINIMUM INFILTRATION RATE OF ½" PER HOUR.
10. CONTRACTOR SHALL OBTAIN A COPY OF THE STANDARD DETAILS FROM THE CITY OF SPOKANE PRIOR TO INITIATING CONSTRUCTION.

20 10 0 20 40

SCALE: 1 INCH = 20 FEET

TBM INFORMATION

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
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4	261877.72	2478570.31	1896.90	SET X

ABBREVIATIONS

ME	MATCH EXISTING
R	RIM
TC	TOP OF CURB
TP	TOP OF PAVEMENT
TV	TOP OF VAULT
BOS	BOTTOM OF SWALE

LEGEND

- BIO-INFILTRATION SWALE BOTTOM
- GRASS PAVERS
- CONCRETE SIDEWALK
- CONCRETE PAVEMENT
- 1900 — EXISTING CONTOUR
- 1900 — PROPOSED CONTOUR
- PROPERTY LINE
- CURB
- 1900.00 SPOT ELEVATION
- CATCH BASIN
- STORM DRAIN DRYWELL

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Spokane, WA 99201
ph 509.328.2994
www.coffman.com

STAMP

THOMAS L. ARNOLD — STATE OF WASHINGTON — 25670 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

SHEET TITLE: GRADING PLAN

PROJECT NAME & ADDRESS: FUELING FACILITY, 1229 W. Boone Avenue, Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority, 1230 W. Boone Avenue, Spokane, Washington 99201

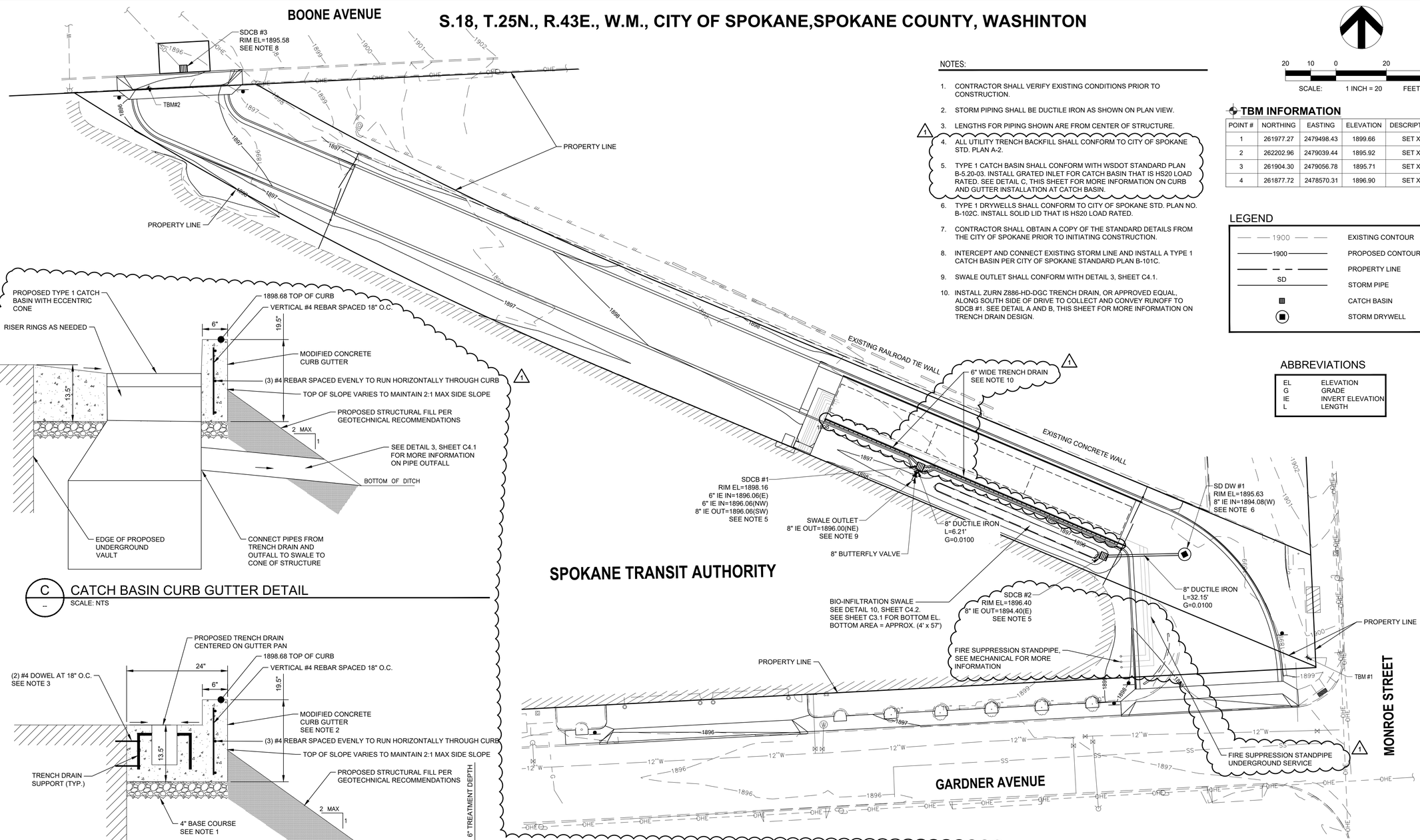
REVISIONS		
No.	Date	By
1	12/10/21	BLW

BID SET

PROJ. NO.	2021-10628
DRAWN	KCM
CHECKED	CBM
DATE	12/10/2021

SHEET: C3.1

S.18, T.25N., R.43E., W.M., CITY OF SPOKANE,SPOKANE COUNTY, WASHINTON



NOTES:

1. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
2. STORM PIPING SHALL BE DUCTILE IRON AS SHOWN ON PLAN VIEW.
3. LENGTHS FOR PIPING SHOWN ARE FROM CENTER OF STRUCTURE.
4. ALL UTILITY TRENCH BACKFILL SHALL CONFORM TO CITY OF SPOKANE STD. PLAN A-2.
5. TYPE 1 CATCH BASIN SHALL CONFORM WITH WSDOT STANDARD PLAN B-5.20-03. INSTALL GRATED INLET FOR CATCH BASIN THAT IS HS20 LOAD RATED. SEE DETAIL C, THIS SHEET FOR MORE INFORMATION ON CURB AND GUTTER INSTALLATION AT CATCH BASIN.
6. TYPE 1 DRYWELLS SHALL CONFORM TO CITY OF SPOKANE STD. PLAN NO. B-102C. INSTALL SOLID LID THAT IS HS20 LOAD RATED.
7. CONTRACTOR SHALL OBTAIN A COPY OF THE STANDARD DETAILS FROM THE CITY OF SPOKANE PRIOR TO INITIATING CONSTRUCTION.
8. INTERCEPT AND CONNECT EXISTING STORM LINE AND INSTALL A TYPE 1 CATCH BASIN PER CITY OF SPOKANE STANDARD PLAN B-101C.
9. SWALE OUTLET SHALL CONFORM WITH DETAIL 3, SHEET C4.1.
10. INSTALL ZURN Z886-HD-DGC TRENCH DRAIN, OR APPROVED EQUAL, ALONG SOUTH SIDE OF DRIVE TO COLLECT AND CONVEY RUNOFF TO SDCB #1. SEE DETAIL A AND B, THIS SHEET FOR MORE INFORMATION ON TRENCH DRAIN DESIGN.

20 10 0 20 40

SCALE: 1 INCH = 20 FEET

TBM INFORMATION

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LEGEND

- 1900 — EXISTING CONTOUR
- 1900 — PROPOSED CONTOUR
- PROPERTY LINE
- SD — STORM PIPE
- CATCH BASIN
- STORM DRYWELL

ABBREVIATIONS

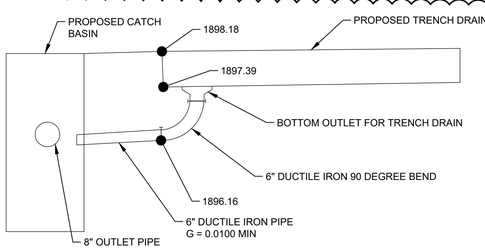
EL	ELEVATION
G	GRADE
IE	INVERT ELEVATION
L	LENGTH

C — CATCH BASIN CURB GUTTER DETAIL
SCALE: NTS

NOTES:

1. 4" CRUSHED SURFACING ROCK BASE COURSE (WSDOT SPECIFICATIONS 9-03.9(3) FOR CRUSHED SURFACING). COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 1557.
2. MODIFIED CONCRETE CURB GUTTER SHALL CONFORM WITH CONCRETE AND JOINT SPECIFICATIONS OF CITY OF SPOKANE STANDARD PLAN F-106 FOR CONCRETE CURB/GUTTER.
3. DOWELS SHALL BE DRILL IN EPOXY INTO SIDE OF VAULT. DO NOT DRILL THROUGH REBAR OF VAULT. INSTALL AT SPACING TO AVOID TRENCH DRAIN SUPPORTS.
4. DIMENSIONS SHOWN ARE BASED ON SPECIFICATIONS FOR A ZURN Z-886-HD TRENCH DRAIN.

A — TRENCH DRAIN CURB GUTTER DETAIL
SCALE: NTS



NOTES:

1. ELEVATIONS SHOWN ARE BASED ON SPECIFICATIONS FOR A ZURN Z-886-HD TRENCH DRAIN.

B — TRENCH DRAIN OUTFALL DETAIL
SCALE: NTS

Know what's below. Call before you dig.

UTILITY STATEMENT
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.

BID SET

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SHEET TITLE: DRAINAGE PLAN

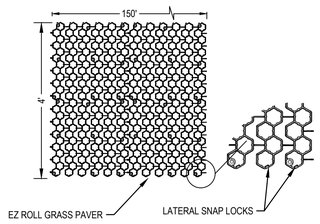
PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

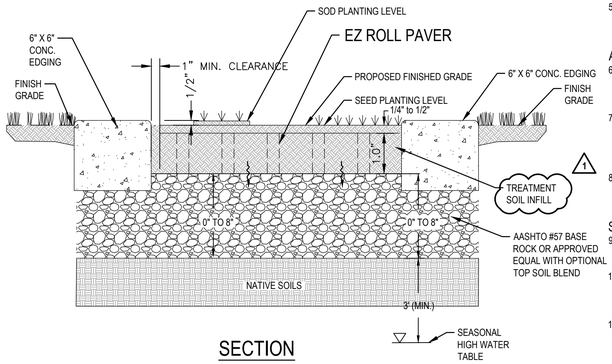
No.	Date	By
1	12/10/21	BLW

PROJ. NO. 2021-10628
DRAWN KCM
CHECKED CBM
DATE 12/10/2021
SHEET C3.2



PLAN VIEW

EZ ROLL™ GRASS PAVER PRODUCT DESCRIPTION
CELL SIZE: 2-1/4" HEXAGONAL CELLS
STOCK ROLL SIZES: 4'W X 150'L (600 SQ. FT.)



SECTION

1 C2.1 EZ ROLL PAVER DETAIL
SCALE: NTS

NOTES: ENGINEERING PROPERTIES:

1. COMPRESSIVE STRENGTH OF EZ ROLL:
   EMPTY PAVERS: ULTIMATE LOAD = 53,683 LBS / 373 PSI
   FILLED PAVERS: ULTIMATE LOAD = 400,000 LBS

1

TREATMENT SOIL FILL:

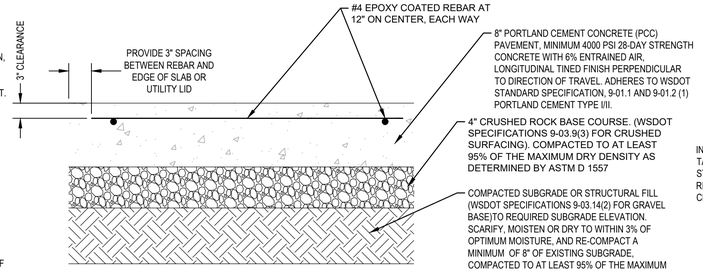
3. SOILS IN THE SWALE AREA SHALL COMPLY WITH THE INFILTRATION RATE CRITERIA INDICATED IN TABLE 6-1 OF THE SPOKANE REGIONAL STORMWATER MANUAL, APRIL 2008. DO NOT OVER-COMPACT SWALE BOTTOM.
   1.1. TREATMENT ZONE INFILTRATION RATE (VEGETATED COVER AND TREATMENT LAYER) BETWEEN 0.25 AND 0.50 INCHES/HOUR.
   1.2. SUBGRADE INFILTRATION RATE OF AT LEAST 0.15 INCHES/HOUR.
   1.3. AVERAGE CATION EXCHANGE CAPACITY OF AT LEAST 15 MILLEQUIVELANTS/100 GRAMS.
   1.4. ORGANIC MATTER CONTENT OF AT LEAST 5.0% (8.0% OPTIMUM) BY WEIGHT.
   1.5. MINIMUM 12 INCHES OF FREE-DRAINING TOPSOIL.
4. EXTEND TOP SOIL INSIDE PAVER AN ADDITIONAL ¼ TO ½ INCH ABOVE PAVER SURFACE AND MATCH SURROUNDING GRADE. PROPOSED FINISHED GRADE SLOPE PER PROJECT GRADING PLAN. PROTECT PAVER AREA UNTIL GRASS IS SUFFICIENTLY ESTABLISHED TO HANDLE TRAFFIC. PROVIDE 1" (MIN.) CLEARANCE BETWEEN ANY CONCRETE EDGE AND PAVER.
5. GRASS PAVERS ARE TO BE USED FOR AREAS OF PEDESTRIAN USE, EROSION CONTROL, AND OCCASIONAL VEHICULAR TRAFFIC USE (E.G., OVERFLOW PARKING AND EMERGENCY/FIRE LANES).

AASHTO #57 BASE ROCK:

6. GRADATION OF AASHTO #57 COARSE BASE ROCK: 100% PASSING 1 ½" SCREEN, 95-100% PASSING 1", 25-60% PASSING ½", AND 0-10% PASSING #8 SCREEN. OPTIONAL: ADD PULVERIZED NATIVE TOP SOIL EQUAL TO 15% OF TOTAL VOLUME. BLEND TO OBTAIN HOMOGENEOUS MIXTURE PRIOR TO PLACEMENT.
7. THICKNESS OF AGGREGATE LAYER IS AS FOLLOWS: NO BASE REQUIRED FOR EROSION CONTROL AND PEDESTRIAN-ONLY LOADS (COMPACTION OF NATIVE SOIL RECOMMENDED FOR SLOPES UP TO 3%); 4 INCHES FOR LIGHT LOADS (GOLF CARTS); 6 INCHES FOR MEDIUM LOADS (CARS AND PICKUP TRUCKS); 8 INCHES FOR HEAVY LOADS (FIRE TRUCKS).
8. COMPACT WITH ONE TO THREE PASSES OF 5-TON STEEL WHEEL ROLLER. SINCE IT IS DIFFICULT TO MEASURE DENSITY OF COARSE AGGREGATE, APPROACH OF REQUIRING A FIXED DENSITY IS NOT APPLICABLE.

SUBGRADE NATIVE SOIL:

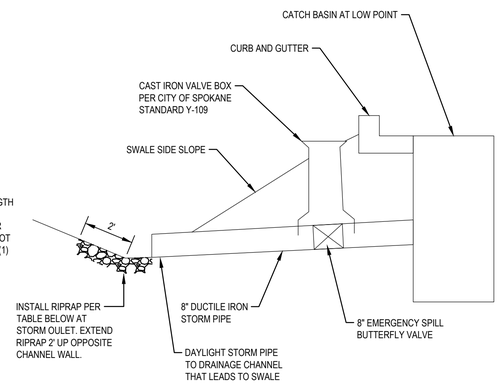
9. COMPACT SUBGRADE NATIVE SOILS TO 95% STANDARD PROCTOR DENSITY PER ASTM D696 FOR SOILS WITH CALIFORNIA BEARING RATIO >20%, R VALUE >30, AASHTO A-1, A-2, AND A-3 SOILS.
10. NDS RECOMMENDS THAT ENGINEER-OF-RECORD CONSIDER HIGHER LEVEL OF COMPACTION FOR CBR 5 TO 20%, R-VALUE 10 TO 30, AASHTO A-4 SOILS FOR HEAVY LOADS WHERE INFILTRATION INTO NATIVE SOILS IS NOT A REQUIREMENT.
11. NDS RECOMMENDS THAT ENGINEER-OF-RECORD CONSULT WITH PROJECT GEOTECHNICAL ENGINEER FOR POTENTIAL SOIL MODIFICATION (E.G., LIME TREATMENT) AND COMPACTION LEVEL FOR CBR <5% AND R-VALUE <10, AASHTO A-5, A-6, AND A-7 SOILS.



NOTES:

1. SEE DETAILS 4-9 SHEETS C4.1 AND C4.2 FOR MORE INFORMATION ON CONCRETE PAVEMENT INSTALLATION.

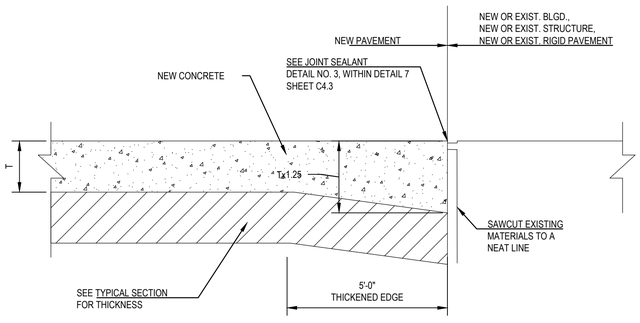
2 C2.1 CONCRETE PAVEMENT
SCALE: NTS



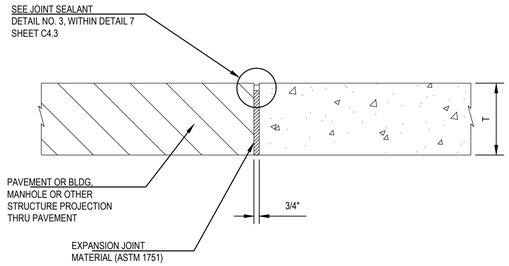
RIPRAP TABLE

PIPE Ø	WIDTH	MIN.	AVG.	MAX.	THICKNESS
0'-8"	2'-0"	0'-1"	0'-4"	0'-6"	1'-0"

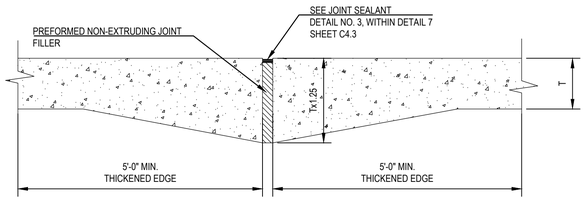
3 C2.1 CATCH BASIN OUTFALL DETAIL
SCALE: NTS



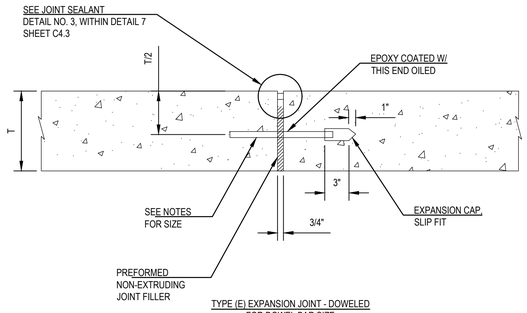
TYPE (S-1) THICKENED EDGE
(ABUTTING RIGID PAVEMENT)



TYPE (E) EXPANSION JOINT - PLAIN

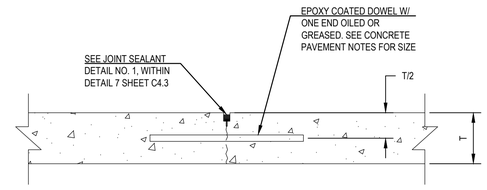


TYPE (S-2) THICKENED EDGE
(THICKENED EDGE ABUTTING THICKENED EDGE)

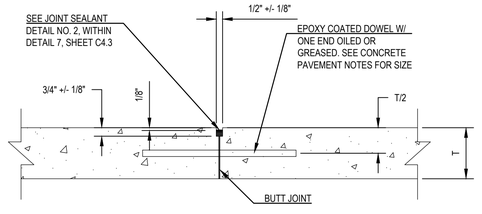


TYPE (E) EXPANSION JOINT - DOWELED
FOR DOWEL BAR SIZE
SEE NOTES, DETAIL 7 THIS SHEET

4 C2.1 ISOLATION JOINTS
SCALE: NTS



5 C2.1 CONTRACTION JOINTS
SCALE: NTS



6 C2.1 CONSTRUCTION JOINTS
SCALE: NTS

1. WHEN DOWELING INTO EXISTING PAVEMENT, DOWEL SHALL BE AT CENTER OF THINNEST CONCRETE SECTION.
2. JOINT SEALING MATERIALS AND METHODS SHALL BE APPROVED PRIOR TO USAGE.
3. PROVIDE MAXIMUM TRANSVERSE JOINT SPACING OF 15 FEET.
4. LONGITUDINAL SAWED JOINTS SHALL BE ±25% THE TRANSVERSE JOINT LENGTH.
5. THE TRANSVERSE PANEL JOINTS SHOULD BE DOWELED USING THE FOLLOWING MINIMUMS FOR GRADE 60 EPOXY COATED DOWEL BARS: 1 INCH DIAMETER, 18-INCH LENGTH, AND 12 INCHES ON-CENTER.
6. THE LONGITUDINAL PANEL JOINTS SHOULD BE DOWELED USING THE FOLLOWING MINIMUMS FOR GRADE 60 EPOXY COATED DOWEL BARS: 1 INCH DIAMETER, 18 INCH LENGTH, AND 12 INCHES ON-CENTER.
7. THE BARS SHOULD BE CENTERED ON CONSTRUCTION JOINTS AND THE MAXIMUM LENGTH BETWEEN DOWELS SHOULD BE 3 FEET.
8. DOWEL BARS SHALL START 12-INCHES FROM EDGE OF CONCRETE OR JOINT.
9. EXPANSION (ISOLATION) JOINTS SHALL USE A 3-8" PREMOLDED JOINT FILLER PER SEC 9-04.1(2). JOINTS SHALL EXTEND THROUGH THE FULL CROSS-SECTION OF THE CONCRETE AND CURB GUTTER, WHERE APPLICABLE.
10. CONTRACTOR SHALL PROVIDE SUBMITTAL FOR JOINT LAYOUT PRIOR TO CONSTRUCTION WITH DOWELS. PROVIDE 3-INCH SPACING BETWEEN REBAR AND JOINTS. DO NOT RUN REBAR CONTINUOUSLY BEYOND JOINTS.
11. PROVIDE THICKENED EDGE AT TRANSITIONS TO OTHER PAVED STRUCTURES.

7 C2.1 CONCRETE PAVEMENT NOTES
SCALE: NTS

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THOMAS L. ARNOLD — STATE OF WASHINGTON — 25670 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
STAMP

SHEET TITLE: **CIVIL DETAILS**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION:
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By
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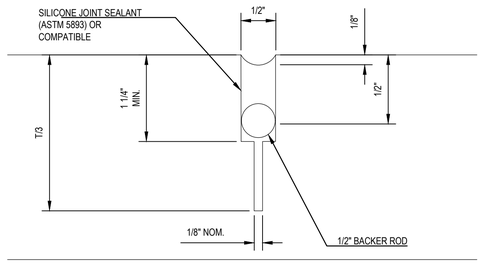
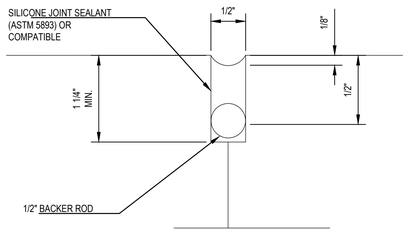
PROJ. NO.	2021-10628
DRAWN	KCM
CHECKED	CBM
DATE	12/10/2021

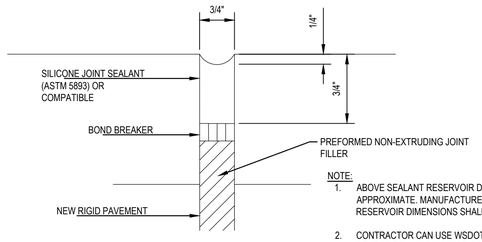
SHEET: C4.1



JOINT SEALANT DETAIL No 1
(CONTRACTION JOINT)

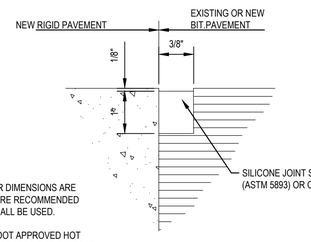


JOINT SEALANT DETAIL No 2
(CONSTRUCTION JOINT)



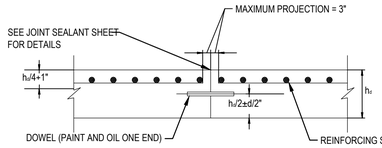
JOINT SEALANT DETAIL No 3
(EXPANSION JOINT)

NOTE:
1. ABOVE SEALANT RESERVOIR DIMENSIONS ARE APPROXIMATE. MANUFACTURE RECOMMENDED RESERVOIR DIMENSIONS SHALL BE USED.
2. CONTRACTOR CAN USE WSDOT APPROVED HOT POURED SEALANT INSTEAD OF SPECIFIED SILICONE JOINT SEALANT.

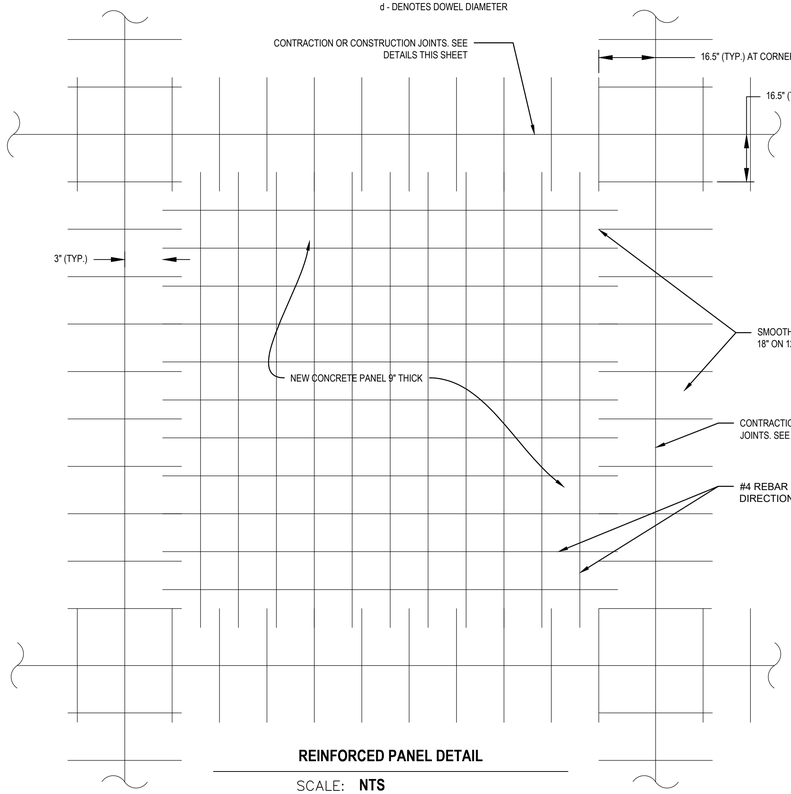


JOINT SEALANT DETAIL No 4
(CONSTRUCTION JOINT)

8 JOINT SEALANT
C2.1
SCALE: NTS



d - DENOTES DOWEL DIAMETER

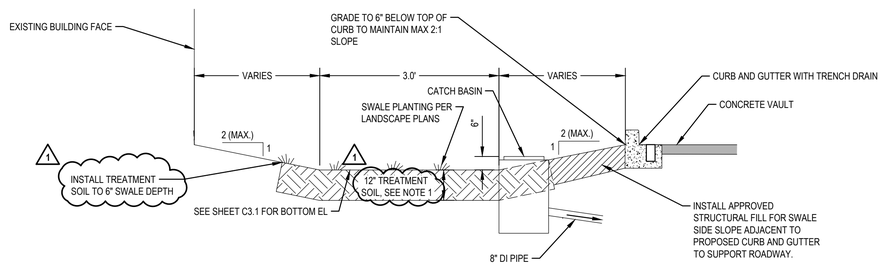


REINFORCED PANEL DETAIL

SCALE: **NTS**

GENERAL NOTES:

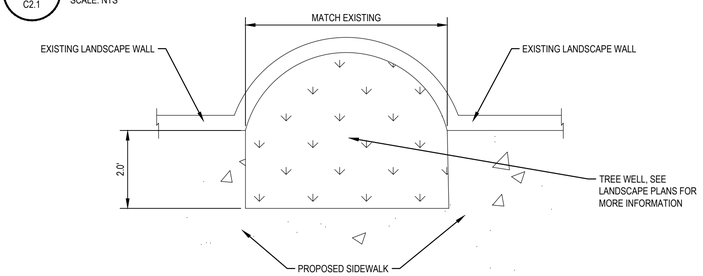
1. REINFORCING STEEL IS NOT CARRIED THROUGH THE JOINT
2. ALL MAT REINFORCING SHALL BE NO. 4 BARS, 12" O.C. EACH DIRECTION.
3. MAXIMUM BAR OR WIRE SPACING SHALL NOT EXCEED 12 INCHES.



BIOINFILTRATION SWALE NOTES:

1. SOILS IN THE SWALE AREA SHALL COMPLY WITH THE INFILTRATION RATE CRITERIA INDICATED IN TABLE 6-1 OF THE SPOKANE REGIONAL STORMWATER MANUAL, APRIL 2008. DO NOT OVER-COMPACT SWALE BOTTOM.
   - 1.1. TREATMENT ZONE INFILTRATION RATE (VEGETATED COVER AND TREATMENT LAYER) BETWEEN 0.25 AND 0.50 INCHES/HOUR.
   - 1.2. SUBGRADE INFILTRATE RATE OF AT LEAST 0.15 INCHES/HOUR.
   - 1.3. AVERAGE CATION EXCHANGE CAPACITY OF AT LEAST 15 MILLEQUIVELANTS/100 GRAMS.
   - 1.4. ORGANIC MATTER CONTENT OF AT LEAST 5.0% (8.0% OPTIMUM) BY WEIGHT.
   - 1.5. MINIMUM 12 INCHES OF FREE-DRAINING TOPSOIL.
2. REFER TO LANDSCAPE PLANS FOR ADDITIONAL INFORMATION REGARDING SWALE PLANTINGS.

9 CONCRETE PAVEMENT REINFORCEMENT
C2.1
SCALE: NTS



10 BIO-INFILTRATION SWALE
C2.1
SCALE: NTS

11 TREE WELL REPLACEMENT
C2.1
SCALE: NTS

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SHEET TITLE: **CIVIL DETAILS**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
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DATE 12/10/2021

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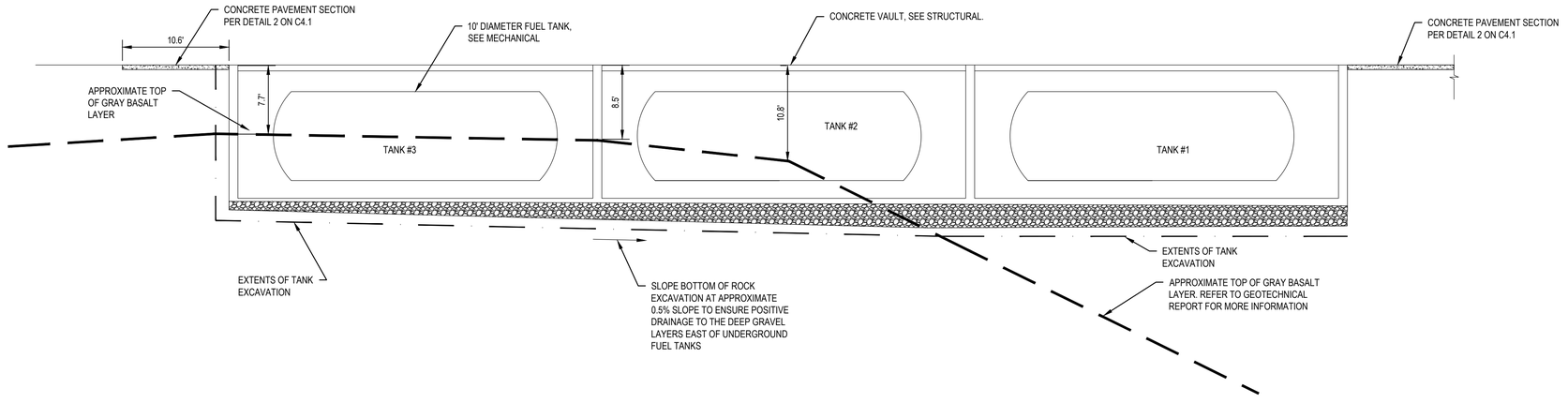
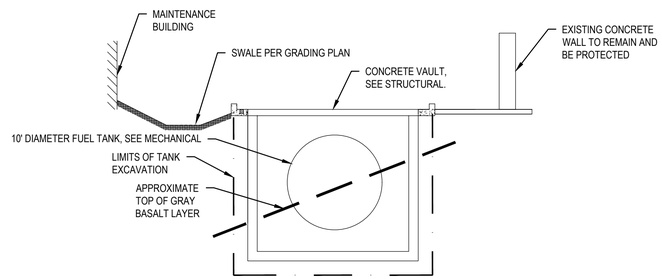


1 / C2.1 SITE SECTION

SCALE: 1 INCH = 8 FEET



2 / C2.1 SITE SECTION

SCALE: 1 INCH = 8 FEET

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STAMP

SHEET TITLE: **SITE SECTIONS**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
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CLIENT INFORMATION:
Spokane Transit Authority
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REVISIONS		
No.	Date	By

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CHECKED	CBM
DATE	12/10/2021

SHEET: C4.3

SECTION 32 84 00 - LANDSCAPE IRRIGATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the modification, adaptation and repair of an existing underground automatic irrigation system, new mainline, control valves and new lateral construction. Work involves, but is not limited to: Selective demolition and reconfiguration of existing mainlines, lateral lines, controls, wiring and other irrigation components.

B. Where conflicts occur between plan and specification, the more restrictive of the two shall apply.

1.2 PERFORMANCE REQUIREMENTS

A. Irrigation zone control shall be automatic operation with controller and automatic control valves, scheduled to complete watering of entire site in 6 hours of operation with 1" of precipitation applied over three days per week of total operating time.

1.2 WARRANTY

A. Contractor shall warranty work and parts for a period of two years beginning on the date of the substantial completion. Any repairs or replacements deemed to be the contractor's responsibility shall be remedied immediately with originally-specified material and to the owner's satisfaction and at no cost to the owner. The contractor shall replace material within 10 days of written notice from owner's representative. INCLUDE letter of warranty consistent with these terms.

1.4 SUBMITTALS

A. The submittals shall be neatly bound with a cover letter on the company's letterhead, indicating the contents and purpose of the submittals. All items shall be provided within one submittal package. Table of Contents listing all material and equipment to be used on the project indicating brand names, model numbers and or shop drawings. Cut sheets of all landscape irrigation items are required. NOTE: all substitutions for proposed products shall be called out in the Table of Contents.

B. Submit for review and approval, proposed design of irrigation system, including mainline location, valve locations, connections to existing controller and wiring, head layout; head type, nozzle size and gallons-per-minute output. Provide spray and rotor heads for turf areas and bubblers for trees, shrubs and groundcover.

C. Operation/Maintenance Manuals:

1. Provide the Owner with two final copies of the Operation and Maintenance Manual for the system. One preliminary copy of the manuals shall be submitted to the Architect for review and approval prior to issuing the two final copies to the Owner. Manuals shall be provided to the Owner prior to the instruction/training session.

C. Record Documents

1. Record accurately all changes, additions, deletions, substitutions, discovered utilities and irrigation system components and other irrigation system modifications on a clean set of Construction Documents. Provide the completed original markup drawings to the Owner and a copy to the Architect at the completion of the work, prior to application for final payment. Record drawings are required in hardcopy, electronic and PDF format, at the same scale as the original design drawings. Dimension from 2 permanent points of reference (building corners, sidewalk, or road intersections, etc.) all valves, sleeves, drains, isolation valves.

2 Controller Charts: Record Drawings shall be approved by the Owner/Landscape Architect before controller charts are prepared. Provide 11x17 size of irrigation system, color coded and laminated, two copies, one at controller and the other with the submittal/record drawing/warranty material.

1.5 QUALITY ASSURANCE

A. Certified Tester shall test the "Backflow Prevention" devices per local City Water Department requirements and the successful results shall be forwarded to the owner.

1.6 INSTRUCTION AND TRAINING

A. Upon completion of the installation, provide a minimum of two (2 hours of instruction to the Owner's personnel in the correct maintenance, operation, and repair of the system and all its components. Instructions shall include a visual inspection and locating tour of the system. The Operations/Maintenance Manuals shall be completed and provided to the Owner prior to the instruction period. The Owner will make the Manuals available for use during the instruction periods.

B. Instructions shall include hands-on training in the troubleshooting, repair and replacement procedures for each system component.

1.7 FIRST WINTERIZATION AND SPRING START-UP

A. Include first winterization and spring startup in scope of services.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

These terms have on "Comparable Product" and "Product Substitution" requirements.

A. Hunter and Rainbird are pre-approved.

2.2 BACKFLOW PREVENTER

A. Verify location, type and operation of existing backflow preventer, and current certification.

2.3 PIPES, TUBES, AND FITTINGS

A. Galvanized Schedule 40, standard threaded, ASTM A120 to 20' past point of connection, with ANSI B16.3 galvanized malleable-iron screwed fittings; Mainline Pipe and Lateral Pipe: Glued PVC Pipe: ASTM D 1785, Schedule 40; Pipe Fittings for PVC Pipe: ASTM D 2464 socket fittings; ASTM D 2466 threaded fittings. PVC Nipples, Schedule 80 ASTM D 2466. Use PVC solvent cement compatible with PVC pipe. (NO quick-drying cement permitted.)

B. Irrigation Control Valve: Rainbird PGA or approved equal.

2.4 SLEEVES

A. All PVC 'sleeve' pipe under pavements and roadways shall be Class 200, ASTM D 1784 or 5. Sleeves shall be 4" diameter for all piping up to 2.5" and 6" diameter for all 3" and larger piping; or if not called out a minimum of twice the size as the inserted pipe. Provide separate 2" sleeves under all hard surfaces for irrigation wiring. Sleeves shall be identified on both sides of crossing under paved surfaces with identification pins. See Drawings.

2.5 SPECIALTY VALVES

A. Plastic Automatic Control Valves: Molded-plastic body, normally closed, pressure-regulating diaphragm type with manual flow adjustment, and operated by 24-V ac solenoid. Master Control Valve: On lines 3" and smaller, Rainbird 300-BPE with control wire from vault to irrigation controller. On lines larger than 3", Bermad WW4710YA54AC flanged control valve. Zone Control (Lateral) Valves: Rain Bird Sprinkler Mfg. Corp. PEB-PRS-D for domestic water. Provide Schedule 80 unions on both sides of control valves for serviceability.

B. Isolation Valves: Non-Rising Stem, resilient wedge (flanged for 2.5" or greater and Schedule 80 Unions for 2" or smaller. Valves shall be Model 405NRSRW as manufactured by Watts or equivalent as approved by owner.

C. Gate Valves: Install ball valve ahead of each electric control valve, line sized, for isolating each zone. Full port Bronze gate valve, A.Y. McDonald or approved equal.

D. Quick-Couplers: Rain Bird Sprinkler Mfg. Corp., Model 44RC or equivalent.

E. Polymer (Thermoplastic) Valve Boxes: Polymer type rectangular 15" x 21.5" x 12" deep with lock down cover with lettering "IRRIGATION" on top. Round valve boxes, 10" diameter top access, shall be used for quick-coupler or main-line isolation valves only.

1. Manufacturers:
   a. Rainbird.

F. Valve Box Bases: Provide "Boxguard" valve box bases beneath all thermoplastic valve boxes. www.boxguard.net.

G. Drainage Backfill: Cleaned gravel or crushed stone, graded from 3/4 inch (19 mm) minimum to 1 inches (26 mm) maximum.

2.6 SPRINKLERS AND OUTLETS

A. Description: Plastic housing and corrosion-resistant interior parts designed for uniform coverage over entire area indicated, at available water pressure.

1. Rainbird products only are pre-approved. Any proposed change from Rainbird required pre-approval.
2. Pop-up spray type with fixed pattern: Rainbird Series 1800, commercial grade
3. Pop-up rotor type, gear drive Rainbird Series 5000, 7000 and 8000, commercial grade, approved by owner;
4. Bubblers: Rainbird.

2.7 AUTOMATIC-CONTROL SYSTEM

A. Existing conventionally wired control system. Coordinate work with owner's maintenance staff.

B. Control Wire: 24 volt solid wire, twisted and sheathed, designed for use with a decoder irrigation system, UF No. 14 AWG minimum, UL approved for direct burial in ground. No. 14 wire for up to 1000' and No. 12 wire above 1000' length. Exposed control wire to the controller shall only be placed in Electrical Metallic Tubing (EMT) conduit for interior building locations and PVC pipe for exterior building locations.

1. Splicing Materials: Manufacturer's packaged kit designed specifically for use in irrigation control systems, suitable for direct burial. All wire splices to be placed in rectangular locking valve box and located correctly on 'Record Drawings'.
2. Grounding: System grounding shall be completed per requirements of irrigation system manufacturer, including grounding loop, grounding rods, and grounding package for controller. .

PART 3 - EXECUTION

3.1 INSTALLATION-GENERAL

A. Backflow Preventer: Existing. Verify current certification.

B. Trenching: All trenches shall be open, vertical construction, sufficiently wide enough to provide ample working space and at depths as specified. Trenching around roots shall be hand excavated to pipe depth when roots of 2 inches in diameter or greater are encountered. Trench width shall be 4 inches minimum or 1-1/2 times the diameter of the pipe or whichever is wider.

1. Trenches shall be kept clean of debris, rocks and backfill during installation process and until mains and laterals have been reviewed and approved by the landscape architect and owners' representatives.

C. Backfill: All work must be inspected, tested and approved by the owner's representative prior to backfilling. Backfill shall be thoroughly tamped to 80% to 85% modified proctor. All backfill in turf areas shall proceed as follows: (No Deviations): Place first lift (1/2 of trench depth) in trench and flood to settle. Final lift shall be placed and compacted even with finish grade. The contractor shall encase all PVC pipe within a 3" layer in all directions, with clean sand before commencing with the backfill process.

3.2 INSTALLATION-PIPING

A. Install piping and wiring in sleeves under all hard surfaces.

B. Install warning tape directly above pressure piping, 12 inches (300 mm) below finished grades, except 6 inches (150 mm) below subgrade under pavement and slabs.

C. Drain Pockets: Excavate to sizes indicated. Backfill with cleaned gravel or crushed stone, graded from 3/4 to 3 inches (19 to 75 mm), to 12 inches (300 mm) below grade. Cover gravel or crushed stone with sheet of asphalt-saturated felt and backfill remainder with excavated material.

D. Provide minimum cover over top of underground piping according to the following: Cover over Irrigation Main Piping and control wires: Not less than 24 inches; Cover over lateral lines: Not less than 18 inches; Cover sleeves (all lines): 24" deep from top of base rock under roads (bottom of pavement). Sleeves under sidewalks shall match proposed mainline and lateral depths.

E. Install fittings for changes in direction and branch connections unions son either side of valves and to final connections to other components.

F. Provide concrete thrust blocks at all changes in direction in mainline piping, with 5 gallons of concrete required per thrust block. Mainlines smaller than 2" are not required to be thrust-blocked. Thrust blocks shall be poured around pipe, after pipe is enclosed in filter fabric or plastic sheeting.

G. Plastic pipe and fittings: solvent welded using solvents and methods as recommended by manufacturer of the pipe, except where threaded connections are required. Pipe and fittings shall be thoroughly cleaned of dirt, dust and moisture before applying solvent with a non-synthetic brush. Primer and solvent shall be applied so that a small, clean bead of same shall be visible. Other than this type of treatment shall be considered an "unfit" installation and shall be requested to do-over. Make all connections between plastic pipe and metal valves or pipe with teflon tape using plastic male adapters.

3.3 INSTALLATION-VALVES

A. Underground Gate Valves: Install in valve box with valve box top top flush with grade; provide minimum clearance between valve box cover and top of valve as shown on Drawings. All valves shall be installed in valve boxes.

B. Control Valves: Install in control-valve box, Valve shall be installed with assembly consisting of schedule 80 nipples and galvanized elbows. Install remote control valves within landscape areas. Valve shall be identified with permanent tag with zone number attached to valve. Tee for valve will be taken off the side of the main line (not the top) and the tee will be large enough to use a slip-by threaded bushing instead of a tapped tee. Place valves adjacent to paved edges of sidewalks, roads or parking lot curbs in a neat and orderly fashion. Valve boxes shall be installed so that the box cover will follow the proposed slopes and contours. (flush with slopes) This may require more than one-extension box. This will occur in all turf grass areas only not in shrub beds or groundcover areas. No valve boxes shall be allowed in the bottom or within 18" of the bottom of swales. Provide 4 bricks per valve box for support. Provide filter-fabric at bottom of box with clean, washed angular gravel on top of filter fabric (Pea gravel not allowed). Valve box lids shall be secured with a bolt.

C. Drain Valves: Install in control-valve box.

D. Sprinkler heads and quick coupler valves: Locate as shown on the drawings, except where existing conditions prohibit, or to better suit field conditions, and to achieve as good, or better, coverage under the same conditions. Change without the owner's representative's consent is subject to disapproval and may require replacement at no extra charge to the owner. Sprinkler heads with ¾" and 1" inlets will be installed with swing joints with 3 Schedule 40 PVC Street Elbows and 1 schedule 80 nipple. Approved swing joint assemblies are Lasco and Spears. Quick coupler swing joints shall consist of galvanized nipples and elbow. Quick couplers shall be as specified in 10" round boxes. Spray heads may be installed with flexible PVC pipe (funny pipe) as approved by owner. Sprinkler heads will have 2" clearance between heads and sidewalks or mow strips. No sprinkler heads will be allowed on curb side of parking strips along any street.

3.4 CONTROLS, WIRING AND CONNECTIONS

A. Install control wires at same depth as main line pipe, and lay to the side of main line. Provide 24" minimum, looped slack wire within each control valve box and at 100' intervals, and snake wires in trench to allow for contraction of wires. Control wire harness shall be looped throughout system. Program remote control valves at controller in sequence as shown on drawings. Low voltage control wire shall be placed in a minimum 3" diameter sleeve (dedicated, with no zone or main piping in sleeve), unless otherwise noted. All sleeves shall extend a minimum 12" beyond paved edge. All splices are to be in valve boxes only. Connect wire together with approved connector only within valve boxes. No direct burial of wire connections. Seal connection with sealing pack approved by wiring manufacturer. The path of the control wire shall be indicated on the "Record Drawings", by the landscape contractor. Exposed control wire to the controller shall be placed in an Electrical Metallic Tubing (EMT) for interior building locations and PVC Sch. 40 pipe for exterior building locations.

B. Install wires from Master Valve/Flow Meter to irrigation controller per requirements of the master valve/flow meter manufacturer. Connect master control wires as described in manufacturers installation procedures. Wires shall be labeled separately from, and/or of different colors from normal control wires, #14 AWG irrigation wire, and installed in continuous 1" PVC conduit, shared with flow sensor wire as indicated on drawings.

C. Grounding shall be completed in accordance with manufacturer's requirements for controller and valve assemblies.

3.5 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports: Mainline Pressure Test: After installation of mainline and electronic valves, and prior to backfilling any pipe joints, charge system to 100 psi for one hour and test for leaks under the supervision of both the Landscape Architect and an Owner Representative. Provide a minimum of 24 hours notice prior to test. If any pipe connections have been buried, testing will be rescheduled once all joints are visible. Repair leaks and retest until no leaks exist. Delete first subparagraph below if no controllers and automatic control valves.

3.6 ADJUSTING AND MAINTENANCE

A. Adjust settings of controllers. Adjust automatic control valves to provide flow rate of rated operating pressure required for each sprinkler circuit. Adjust sprinklers so they will be above, nor more than 1/2 inch (13 mm) below finish grade.

B. Maintenance Service: Maintenance Period: Landscape and irrigation maintenance shall be performed for 12 months from date of substantial completion.

C. Contractor shall include coordination with irrigation controller manufacturer for the commissioning and scheduling and training prior to final completion.

END OF SECTION 32 84 00

SECTION 32 91 19 - LANDSCAPE GRADING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Final grade topsoil for finished landscaping. Soil compaction shall not exceed 85% at any point in the construction process. Testing of topsoil compaction shall be required during construction and prior to completion and verified to be at or below the 85% compaction requirement. Any areas not within specified compaction shall be loosened to achieve specified compaction.

PART 2 - PRODUCTS

2.1 2.01 TOPSOIL MATERIAL AND AMENDMENTS

A. Imported Topsoil: Commercial Topsoil (CT) mix; depth per drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify building and trench backfilling have been inspected.

B. Verify subgrade has been ripped, contoured and properly compacted according to the grading plan(s). Ensure that no landscape areas have been compacted to more than 85% relative to the soil types encountered at any point in the construction process.

C. Prior to installation of irrigation system and/or placing any topsoil in swale areas, all swales shall be flooded with water through normal inlets to test subgrade drainage. Test shall begin when swale is inundated to a depth adequate to reach drywell rim, and shall be timed to end when water has drained from swale.

1. Should water not drain within 72 hours, contractor shall rip or otherwise excavate swale bottom to loosen soil and provide adequate drainage. Swales that do not drain shall be retested after soil excavation/ripping.

3.2 SUBSTRATE PREPARATION

A. Eliminate uneven areas, high points and low spots. Subgrade elevations must be within 1" tolerances.

B. Remove debris, roots, branches, stones, in excess of 1 inch in size.

C. Thoroughly rip sub-grade to a minimum depth of 6" prior to placing topsoil. 12" in those areas determined by the Owner/Landscape Architect to have been overly compacted or contaminated during the construction process. Ripping may be accomplished by a toothed implement or by tilling. Perform this operation in all areas and while either the Owner or the Landscape Architect is present and test for compaction.

D. Subgrade compaction shall not be more than 85% in any areas scheduled for topsoil. Topsoil compaction shall not be more than 85% at any point in the construction process.

3.3 PLACING TOPSOIL

A. Place topsoil in areas where landscaping is required to scheduled depths. Place topsoil during dry weather only. Street trees shall be planted with native, non - amended soils per City of Spokane requirements.

3.4 TOLERANCES

A. Top of Topsoil: Plus or minus 1" in 10 feet. Thickness of Topsoil: Plus or minus 1/2". Changes in grades are to be made gradual and smooth without abrupt edges or ridges to insure proper mowing conditions and gentle slopes.

END OF SECTION 32 91 19

SECTION 32 9200 - SODDING

In this Section are correct for this Project's Specifications; Section titles may have changed.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Sodding.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 INFORMATIONAL SUBMITTALS

A. Certification of grass mix.

1. Certification of turfgrass sod.

B. Product certificates.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod in time for planting within 24 hours of harvesting. Protect sod from breakage and drying.

PART 2 - PRODUCTS

2.1 SOD MIXES

Turfgrass Sod: Number 1 Quality/Premium sod, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted.

B. "Basin Sod" standard blend or approved equal.

2.2 ORGANIC SOIL AMENDMENTS

A. Amendments per the requirements of this Section, Section 32 91 19 and 32 93 00.

2.3 FERTILIZERS

A. Starter Fertilizer: Wilbur Ellis, Wil-Grow Pro Start 10-20-20 (N-P-K) applied at 1 lb. Nitrogen per 1000 square feet.

B. Commercial Fertilizer: Commercial-grade complete fertilizer, Wilbur Ellis Wil-Gro Kwik Kick 21-7-14 (N-P-K), applied at a rate of 6.33 lbs per application, as specified herein.

2.4 PLANTING SOILS

A. Copy paragraph below and re-edit for each type of planting soil mix required to suit Project.

B. Planting Soil: Per section 32 9119.

PART 3 - EXECUTION

3.1 TURF AREA PREPARATION

A. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches (150 mm). Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property. Ensure that soil compaction tests have been successfully completed per Section 32 91 19.

1. Apply startersoil conditioner and fertilizer directly to subgrade after loosening, and then rototill to a depth of 4 inches.
   a. Fertilizer shall be blended to respond to soils tests from soil to be used on site, and blended to create an acceptable mix of nutrients for turf grass production.
2. Thoroughly blend planting soil before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil.
3. Spread planting soil to a depth of 4 inches (100 mm) but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

B. Unchanged Subgrades: If turf is to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:

1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
2. Loosen surface soil to a depth of at least 4 inches (150 mm). Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
   a. Apply fertilizer directly to surface soil before loosening.
3. Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, trash, and other extraneous matter.

C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch (13 mm) of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.

D. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

E. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 SODDING

A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy. Any overly dried or obviously dead sod shall not be installed and shall be removed immediately from the project site. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass. Lay sod across angle of slopes exceeding 3:1. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist sol to a minimum depth of 1-1/2 inches (38 mm) below sod.

3.3 TURF MAINTENANCE

A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish and maintain healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

END OF SECTION 32 92 00

SECTION 32 93 00 - TREES, PLANTS AND GROUNDCOVER

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Topsoil bedding within landscape areas shown on drawings, New trees, plants and ground cover, Mulch and fertilizer, Maintenance. Plant material stock shall be in conformance with ANSI Z60.1.

1.2 SUBMITTALS

A. Maintenance Data: Include cutting and trimming method; types, application frequency, and recommended coverage of fertilizer. Submit list of plant life sources. Product data or samples of all items defined in this section.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in installing and planting the plants with minimum three years documented experience and approved by nursery, located within a 50 mile radius of the project site.

B. Planting shall be completed in conformance with City of Spokane requirements

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect and maintain plant life until planted. Deliver plant life materials immediately prior to placement. Keep plants moist. Do not install plant life when ambient temperatures may drop below 35º or above 95º F for more than 48 hours. Do not install plant life when wind velocity exceeds 30 mph.

1.5 WARRANTY

A. Provide one year warranty under provisions of Division 1. Include coverage for one continuous growing season from date of substantial completion for entire project. Replace dead or unhealthy plants throughout length of the project and warranty period. Replacements: Plants of same size and species as specified, planted in the next growing season, with a new warranty commencing on date of replacement.

PART 2 PRODUCTS

2.1 TREES, PLANTS, AND GROUND COVER

A. Trees, Plants and Ground Cover: Species and size identifiable in plant schedule, grown in climatic conditions similar to those in locality of the Work.

2.2 SOIL MATERIALS

A. Topsoil: Wittkopf Commercial Topsoil.

B. Planting soil for Street Trees: Native topsoil.

2.3 SOIL AMENDMENT MATERIALS

A. Fertilizer: Fertilizer tablets for planting pits, containing fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil to the following proportions: Nitrogen 20 percent, phosphoric acid 10 percent, soluble potash 5 percent.

2.4 ACCESSORIES

A. Stakes: Softwood lumber, pointed end. Tree Chain: Chain Lock Tree Ties one inch wide to withstand wind pressure and resultant movement of plant life. Chain Lock Tree Ties manufactured by: Mastermark; local distributor Wilbur-Ellis Co., Ph. (509) 928-4512. Submit sample for approval. Rock Mulch: 3/4" to 1-1/2" washed crushed basalt chip. Nonwoven Geotextile Weed Barrier Fabric: Spunbond polypropylene or polyester fabric, 3 oz./sq. yd. (101g/sq. m) minimum, as manufactured by TurfGro. Concrete Lawn Edging: Extruded 6x6, 3000 psi @ 28 days.

PART 3 EXECUTION

3.1 FERTILIZING

A. Apply fertilizer in accordance with manufacturer's instructions.

3.2 PLANTING

A. Place plants for best appearance for review and final orientation by Landscape Architect. Set plants vertical. Remove non-biodegradable root containers. Set plants in pits or beds, partly filled with prepared plant mix, as indicated on drawings under each plant. Cut and loosen burlap, ropes, and wires, from the root ball after installation but prior to backfilling. Install fertilizer tablets per manufacturer's recommendations. Saturate soil with water when the pit or bed is half full of top-soil and again when full.

B. Installation shall be completed per requirements of City of Spokane Urban Forestry under the observation of a licensed, certified Arborist.

3.3 INSTALLATION OF ACCESSORIES

A. Place landscape weed barrier fabric in all planting beds and planters, with decorative cover.

B. Install mulch to a depth of 2" in all planting beds.

3.4 PLANT SUPPORT

A. Trees shall be staked according to the installers certified arborists' recommendations.

END OF SECTION 32 93 00

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STATE OF WASHINGTON · THOMAS C. SHERRY · NO. 489 EXP. 07/08/2022 · LICENSED LANDSCAPE ARCHITECT

STAMP

SHEET TITLE: LANDSCAPE SPECIFICATIONS

PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By
1	12/10/2021	GMS

PROJ. NO. 2021-10628
DRAWN GMS
CHECKED TCS
DATE 12/10/2021

BID SET

SHEET L1.0

IRRIGATION SCHEDULE

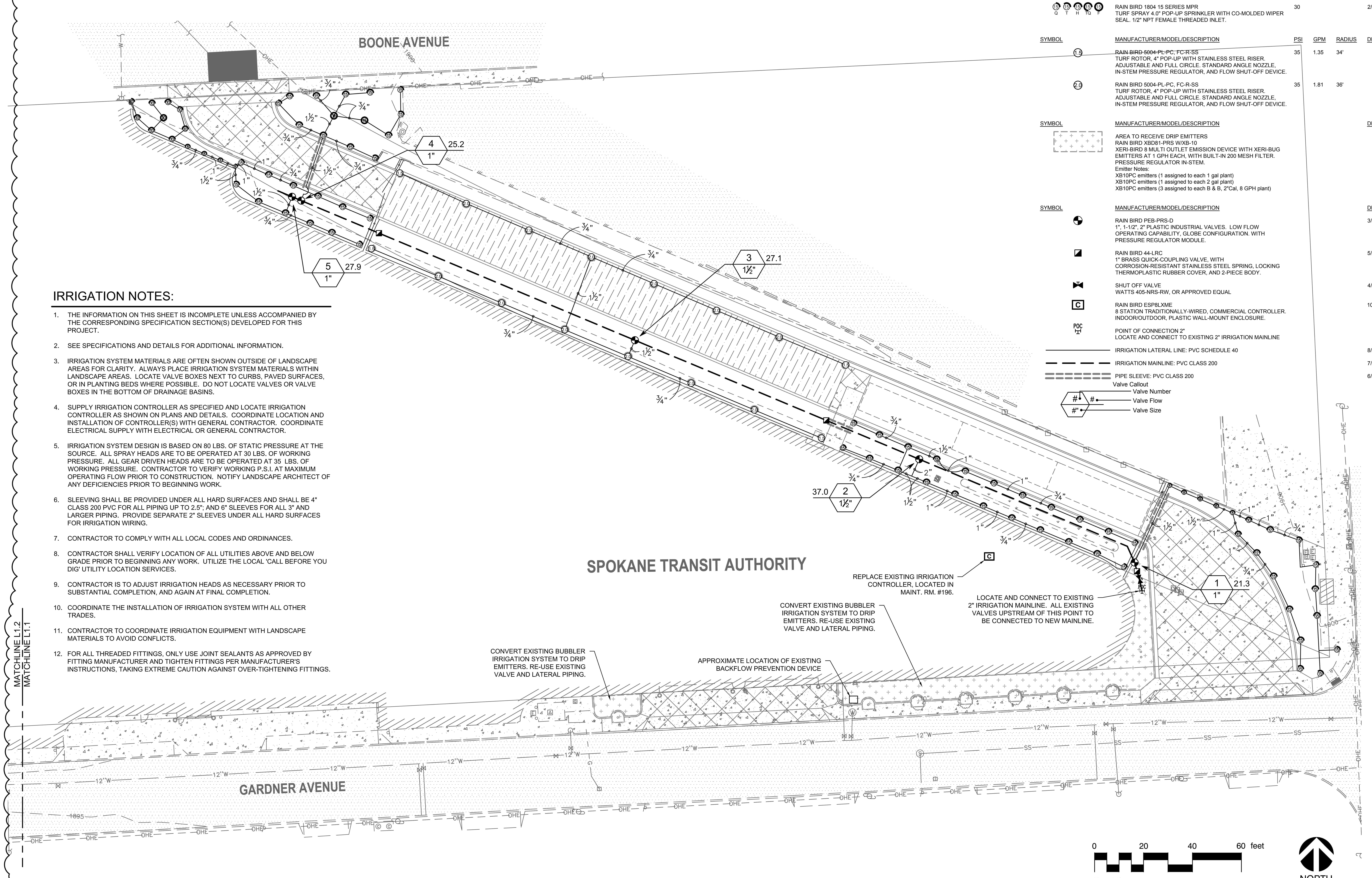
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI	DETAIL
8 Q T H F	RAIN BIRD 1804 8 SERIES MPR TURF SPRAY 4.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET.	30	2/L501
10 Q T H F	RAIN BIRD 1804 10 SERIES MPR TURF SPRAY 4.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET.	30	2/L501
12 Q T H TQ F	RAIN BIRD 1804 12 SERIES MPR TURF SPRAY 4.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET.	30	2/L501
15 Q T H TQ F	RAIN BIRD 1804 15 SERIES MPR TURF SPRAY 4.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET.	30	2/L501

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI	GPM	RADIUS	DETAIL
1.5	RAIN BIRD 5004-PL-PC, FC-R-SS TURF ROTOR, 4" POP-UP WITH STAINLESS STEEL RISER. ADJUSTABLE AND FULL CIRCLE. STANDARD ANGLE NOZZLE, IN-STEM PRESSURE REGULATOR, AND FLOW SHUT-OFF DEVICE.	35	1.35	34'	
2.0	RAIN BIRD 5004-PL-PC, FC-R-SS TURF ROTOR, 4" POP-UP WITH STAINLESS STEEL RISER. ADJUSTABLE AND FULL CIRCLE. STANDARD ANGLE NOZZLE, IN-STEM PRESSURE REGULATOR, AND FLOW SHUT-OFF DEVICE.	35	1.81	36'	

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	DETAIL
▨	AREA TO RECEIVE DRIP EMITTERS RAIN BIRD XBD81-PRS W/XB-10 XERI-BIRD 8 MULTI OUTLET EMISSION DEVICE WITH XERI-BUG EMITTERS AT 1 GPH EACH, WITH BUILT-IN 200 MESH FILTER. PRESSURE REGULATOR IN-STEM. Emitter Notes: XB10PC emitters (1 assigned to each 1 gal plant) XB10PC emitters (1 assigned to each 2 gal plant) XB10PC emitters (3 assigned to each B & B, 2"Cal, 8 GPH plant)	

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	DETAIL
◐	RAIN BIRD PEB-PRS-D 1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION. WITH PRESSURE REGULATOR MODULE.	3/L501
◩	RAIN BIRD 44-LRC 1" BRASS QUICK-COUPLING VALVE, WITH CORROSION-RESISTANT STAINLESS STEEL SPRING, LOCKING THERMOPLASTIC RUBBER COVER, AND 2-PIECE BODY.	5/L501
⋈	SHUT OFF VALVE WATTS 405-NRS-RW, OR APPROVED EQUAL	4/L501
C	RAIN BIRD ESP8LXME 8 STATION TRADITIONALLY-WIRED, COMMERCIAL CONTROLLER. INDOOR/OUTDOOR, PLASTIC WALL-MOUNT ENCLOSURE.	10/L501
POC	POINT OF CONNECTION 2" LOCATE AND CONNECT TO EXISTING 2" IRRIGATION MAINLINE	
——	IRRIGATION LATERAL LINE: PVC SCHEDULE 40	8/L501
— —	IRRIGATION MAINLINE: PVC CLASS 200	7/L501
═ ═	PIPE SLEEVE: PVC CLASS 200	6/L501

Valve Callout
- Valve Number
- Valve Flow
- Valve Size



IRRIGATION NOTES:

1. THE INFORMATION ON THIS SHEET IS INCOMPLETE UNLESS ACCOMPANIED BY THE CORRESPONDING SPECIFICATION SECTION(S) DEVELOPED FOR THIS PROJECT.
2. SEE SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
3. IRRIGATION SYSTEM MATERIALS ARE OFTEN SHOWN OUTSIDE OF LANDSCAPE AREAS FOR CLARITY. ALWAYS PLACE IRRIGATION SYSTEM MATERIALS WITHIN LANDSCAPE AREAS. LOCATE VALVE BOXES NEXT TO CURBS, PAVED SURFACES, OR IN PLANTING BEDS WHERE POSSIBLE. DO NOT LOCATE VALVES OR VALVE BOXES IN THE BOTTOM OF DRAINAGE BASINS.
4. SUPPLY IRRIGATION CONTROLLER AS SPECIFIED AND LOCATE IRRIGATION CONTROLLER AS SHOWN ON PLANS AND DETAILS. COORDINATE LOCATION AND INSTALLATION OF CONTROLLER(S) WITH GENERAL CONTRACTOR. COORDINATE ELECTRICAL SUPPLY WITH ELECTRICAL OR GENERAL CONTRACTOR.
5. IRRIGATION SYSTEM DESIGN IS BASED ON 80 LBS. OF STATIC PRESSURE AT THE SOURCE. ALL SPRAY HEADS ARE TO BE OPERATED AT 30 LBS. OF WORKING PRESSURE. ALL GEAR DRIVEN HEADS ARE TO BE OPERATED AT 35 LBS. OF WORKING PRESSURE. CONTRACTOR TO VERIFY WORKING P.S.I. AT MAXIMUM OPERATING FLOW PRIOR TO CONSTRUCTION. NOTIFY LANDSCAPE ARCHITECT OF ANY DEFICIENCIES PRIOR TO BEGINNING WORK.
6. SLEEVING SHALL BE PROVIDED UNDER ALL HARD SURFACES AND SHALL BE 4" CLASS 200 PVC FOR ALL PIPING UP TO 2.5"; AND 6" SLEEVES FOR ALL 3" AND LARGER PIPING. PROVIDE SEPARATE 2" SLEEVES UNDER ALL HARD SURFACES FOR IRRIGATION WIRING.
7. CONTRACTOR TO COMPLY WITH ALL LOCAL CODES AND ORDINANCES.
8. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES ABOVE AND BELOW GRADE PRIOR TO BEGINNING ANY WORK. UTILIZE THE LOCAL 'CALL BEFORE YOU DIG' UTILITY LOCATION SERVICES.
9. CONTRACTOR IS TO ADJUST IRRIGATION HEADS AS NECESSARY PRIOR TO SUBSTANTIAL COMPLETION, AND AGAIN AT FINAL COMPLETION.
10. COORDINATE THE INSTALLATION OF IRRIGATION SYSTEM WITH ALL OTHER TRADES.
11. CONTRACTOR TO COORDINATE IRRIGATION EQUIPMENT WITH LANDSCAPE MATERIALS TO AVOID CONFLICTS.
12. FOR ALL THREADED FITTINGS, ONLY USE JOINT SEALANTS AS APPROVED BY FITTING MANUFACTURER AND TIGHTEN FITTINGS PER MANUFACTURER'S INSTRUCTIONS, TAKING EXTREME CAUTION AGAINST OVER-TIGHTENING FITTINGS.

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STATE OF WASHINGTON
THOMAS C. SHERRY
NO. 489 EXP. 07/08/2022
LICENSED LANDSCAPE ARCHITECT

STAMP

SHEET TITLE
IRRIGATION PLAN

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By
1	12/10/2021	GMS

PROJ. NO. 2021-10628
DRAWN GMS
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DATE 12/10/2021

BID SET

SHEET
L1.1

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1. THE INFORMATION ON THIS SHEET IS INCOMPLETE UNLESS ACCOMPANIED BY THE CORRESPONDING SPECIFICATION SECTION(S) DEVELOPED FOR THIS PROJECT.
2. SEE SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
3. IRRIGATION SYSTEM MATERIALS ARE OFTEN SHOWN OUTSIDE OF LANDSCAPE AREAS FOR CLARITY. ALWAYS PLACE IRRIGATION SYSTEM MATERIALS WITHIN LANDSCAPE AREAS. LOCATE VALVE BOXES NEXT TO CURBS, PAVED SURFACES, OR IN PLANTING BEDS WHERE POSSIBLE. DO NOT LOCATE VALVES OR VALVE BOXES IN THE BOTTOM OF DRAINAGE BASINS.
4. SUPPLY IRRIGATION CONTROLLER AS SPECIFIED AND LOCATE IRRIGATION CONTROLLER AS SHOWN ON PLANS AND DETAILS. COORDINATE LOCATION AND INSTALLATION OF CONTROLLER(S) WITH GENERAL CONTRACTOR. COORDINATE ELECTRICAL SUPPLY WITH ELECTRICAL OR GENERAL CONTRACTOR.
5. IRRIGATION SYSTEM DESIGN IS BASED ON 80 LBS. OF STATIC PRESSURE AT THE SOURCE. ALL SPRAY HEADS ARE TO BE OPERATED AT 30 LBS. OF WORKING PRESSURE. ALL GEAR DRIVEN HEADS ARE TO BE OPERATED AT 35 LBS. OF WORKING PRESSURE. CONTRACTOR TO VERIFY WORKING P.S.I. AT MAXIMUM OPERATING FLOW PRIOR TO CONSTRUCTION. NOTIFY LANDSCAPE ARCHITECT OF ANY DEFICIENCIES PRIOR TO BEGINNING WORK.
6. SLEEVING SHALL BE PROVIDED UNDER ALL HARD SURFACES AND SHALL BE 4" CLASS 200 PVC FOR ALL PIPING UP TO 2.5"; AND 6" SLEEVES FOR ALL 3" AND LARGER PIPING. PROVIDE SEPARATE 2" SLEEVES UNDER ALL HARD SURFACES FOR IRRIGATION WIRING.
7. CONTRACTOR TO COMPLY WITH ALL LOCAL CODES AND ORDINANCES.
8. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES ABOVE AND BELOW GRADE PRIOR TO BEGINNING ANY WORK. UTILIZE THE LOCAL 'CALL BEFORE YOU DIG' UTILITY LOCATION SERVICES.
9. CONTRACTOR IS TO ADJUST IRRIGATION HEADS AS NECESSARY PRIOR TO SUBSTANTIAL COMPLETION, AND AGAIN AT FINAL COMPLETION.
10. COORDINATE THE INSTALLATION OF IRRIGATION SYSTEM WITH ALL OTHER TRADES.
11. CONTRACTOR TO COORDINATE IRRIGATION EQUIPMENT WITH LANDSCAPE MATERIALS TO AVOID CONFLICTS.
12. FOR ALL THREADED FITTINGS, ONLY USE JOINT SEALANTS AS APPROVED BY FITTING MANUFACTURER AND TIGHTEN FITTINGS PER MANUFACTURER'S INSTRUCTIONS, TAKING EXTREME CAUTION AGAINST OVER-TIGHTENING FITTINGS.

IRRIGATION SCHEDULE

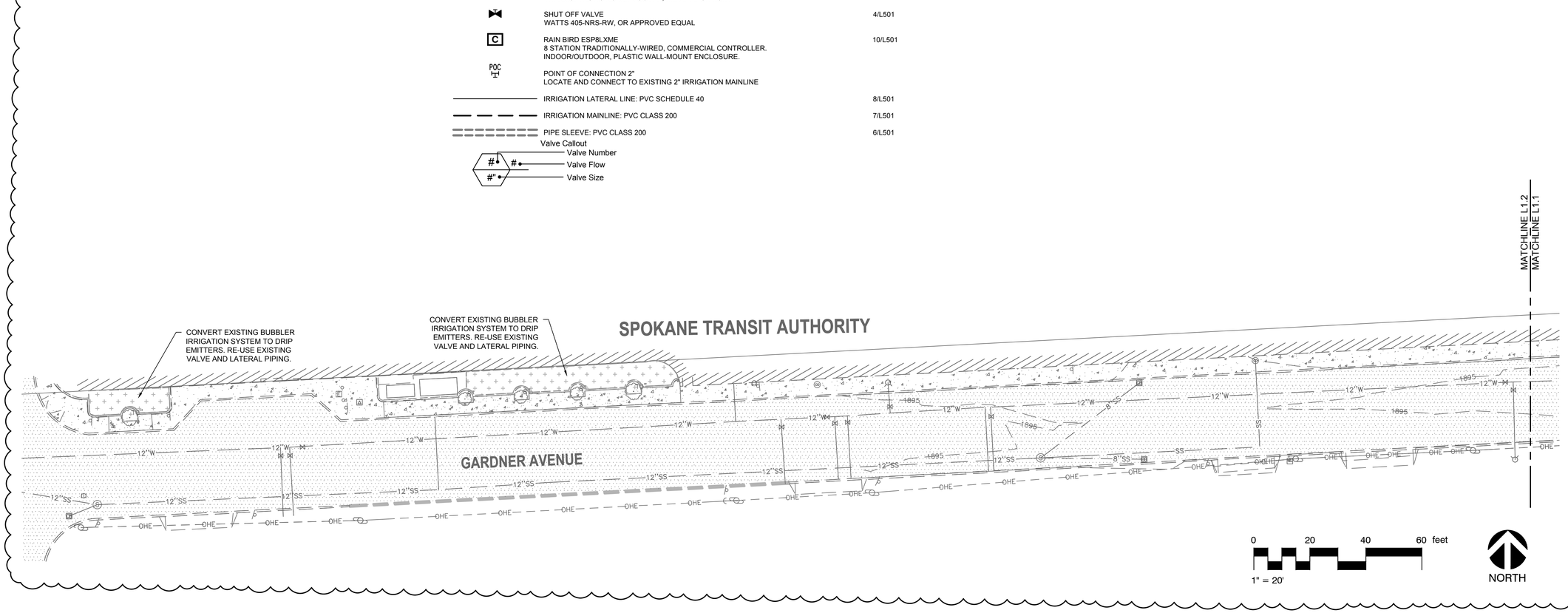
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI	DETAIL
10Q 10T 10H 10F	RAIN BIRD 1804 8 SERIES MPR TURF SPRAY 4.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET.	30	2/L501
10Q 10T 10H 10F	RAIN BIRD 1804 10 SERIES MPR TURF SPRAY 4.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET.	30	2/L501
12Q 12T 12H 12TQ 12F	RAIN BIRD 1804 12 SERIES MPR TURF SPRAY 4.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET.	30	2/L501
15Q 15T 15H 15TQ 15F	RAIN BIRD 1804 15 SERIES MPR TURF SPRAY 4.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET.	30	2/L501

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI	GPM	RADIUS	DETAIL
1.5	RAIN BIRD 5004-PL-PC, FC-R-SS TURF ROTOR, 4" POP-UP WITH STAINLESS STEEL RISER. ADJUSTABLE AND FULL CIRCLE. STANDARD ANGLE NOZZLE, IN-STEM PRESSURE REGULATOR, AND FLOW SHUT-OFF DEVICE.	35	1.35	34'	
2.0	RAIN BIRD 5004-PL-PC, FC-R-SS TURF ROTOR, 4" POP-UP WITH STAINLESS STEEL RISER. ADJUSTABLE AND FULL CIRCLE. STANDARD ANGLE NOZZLE, IN-STEM PRESSURE REGULATOR, AND FLOW SHUT-OFF DEVICE.	35	1.81	36'	

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	DETAIL
	AREA TO RECEIVE DRIP EMITTERS RAIN BIRD XBD81-PRS W/XB-10 XERI-BIRD 8 MULTI OUTLET EMISSION DEVICE WITH XERI-BUG EMITTERS AT 1 GPH EACH, WITH BUILT-IN 200 MESH FILTER. PRESSURE REGULATOR IN-STEM. Emitter Notes: XB10PC emitters (1 assigned to each 1 gal plant) XB10PC emitters (1 assigned to each 2 gal plant) XB10PC emitters (3 assigned to each B & B, 2"Cal, 8 GPH plant)	

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	DETAIL
	RAIN BIRD PEB-PRS-D 1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION. WITH PRESSURE REGULATOR MODULE.	3/L501
	RAIN BIRD 44-LRC 1" BRASS QUICK-COUPLING VALVE, WITH CORROSION-RESISTANT STAINLESS STEEL SPRING, LOCKING THERMOPLASTIC RUBBER COVER, AND 2-PIECE BODY.	5/L501
	SHUT OFF VALVE WATTS 405-NRS-RW, OR APPROVED EQUAL	4/L501
C	RAIN BIRD ESP8LXME 8 STATION TRADITIONALLY-WIRED, COMMERCIAL CONTROLLER. INDOOR/OUTDOOR, PLASTIC WALL-MOUNT ENCLOSURE.	10/L501
POC	POINT OF CONNECTION 2" LOCATE AND CONNECT TO EXISTING 2" IRRIGATION MAINLINE	
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40	8/L501
	IRRIGATION MAINLINE: PVC CLASS 200	7/L501
	PIPE SLEEVE: PVC CLASS 200	6/L501

Valve Callout
Valve Number
Valve Flow
Valve Size



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509.325.0511 | WWW.SPVV.COM

STATE OF WASHINGTON · THOMAS C. SHERRY · NO. 489 EXP. 07/08/2022 · LICENSED LANDSCAPE ARCHITECT

STAMP

SHEET TITLE: IRRIGATION PLAN

PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS		
No.	Date	By
1	12/10/2021	GMS

PROJ. NO.	2021-10628
DRAWN	GMS
CHECKED	TCS
DATE	12/10/2021

SHEET: L1.2

CITY OF SPOKANE PLANTING NOTES:

1. THE CONTRACTOR SHALL PLANT ALL TREES AND SHRUBS ACCORDING TO DETAIL V-101 AND V-102. AFTER PLANTING IF TREES ARE UNSTABLE STAKING MAY BE USED BUT ONLY AS NECESSARY. AT 6 MONTHS, ALL STAKING MATERIAL SHALL BE REMOVED. IF TREE IS STILL UNSTABLE AFTER 6 MONTHS, TREE MAY NEED TO BE REPLACED.
2. PRIOR TO STREET/PUBLIC TREE INSTALLATION, PRUNING (CROWN/ROOT) OR REMOVAL, OR REMOVAL, PLEASE HAVE THE CONTRACTED LICENSED ARBORIST SUBMIT A COMPLETED PUBLIC TREE PERMIT APPLICATION AT LEAST 10 DAYS PRIOR TO WORK BEING PERFORMED FOR THIS PROJECT TO INCLUDE CERTIFIED ARBORIST INFORMATION AND START AND COMPLETION DATES.
3. FOR STREET TREE PLANTING DISTANCES FROM EXISTING OR NEWLY CONSTRUCTED INFRASTRUCTURE, PLEASE REFER TO CITY OF SPOKANE DESIGN STANDARDS 3.4-6 ROADSIDE PLANTING AT HTTPS://STATIC.SPOKANECITY.ORG/DOCUMENTS/PROJECTS/STREET-DESIGN-STANDARDS-UPDATE/SPOKANE-DESIGN-STANDARDS-V13-2020-11-03.PDF. TREE PLANTING DISTANCES FROM ONSITE CONFLICTS DUE TO OTHER INFRASTRUCTURE CAN BE DETERMINED ON A CASE-BY-CASE BASIS AND COORDINATION WITH UF STAFF SHOULD BE COMPLETED PRIOR TO PERMIT SUBMITTAL.
4. ANY SUBSTITUTIONS OF PUBLIC STREET TREES MUST HAVE WRITTEN APPROVAL FROM URBAN FORESTRY PRIOR TO INSTALLATION.

GENERAL PLANTING NOTES:

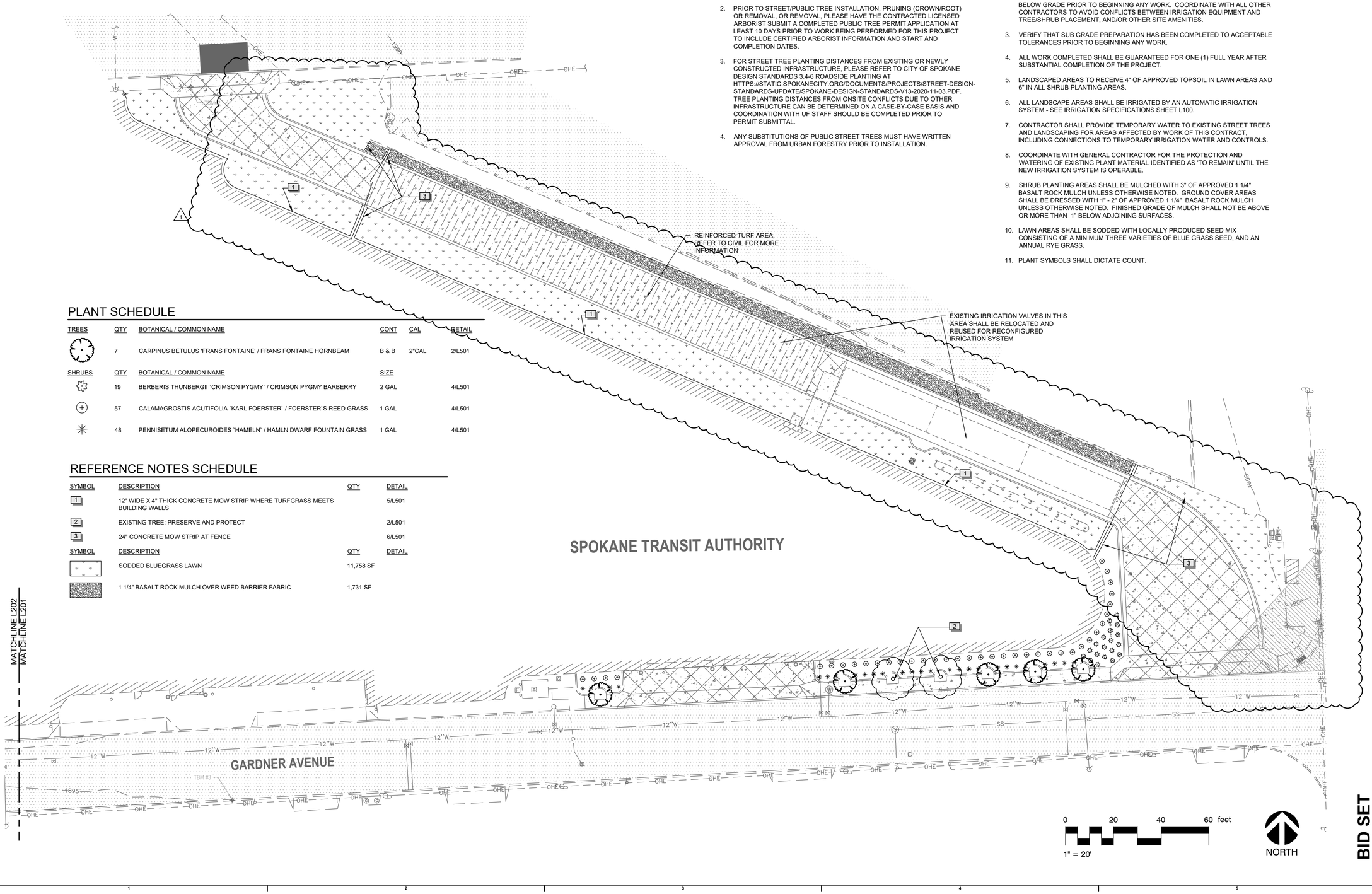
1. REFER TO SPECIFICATIONS ON SHEET L100. ALL PERTINENT INFORMATION HAS BEEN PROVIDED ON THESE PLAN SHEETS. ENSURE THAT ALL RELATED ARCHITECTURAL AND CIVIL SHEETS ARE THOROUGHLY REVIEWED AS REFERENCE TO INFORMATION ON THE LANDSCAPE AND IRRIGATION SHEETS.
2. VERIFY LOCATION OF ALL EXISTING AND PROPOSED UTILITIES EITHER ABOVE OR BELOW GRADE PRIOR TO BEGINNING ANY WORK. COORDINATE WITH ALL OTHER CONTRACTORS TO AVOID CONFLICTS BETWEEN IRRIGATION EQUIPMENT AND TREE/SHRUB PLACEMENT, AND/OR OTHER SITE AMENITIES.
3. VERIFY THAT SUB GRADE PREPARATION HAS BEEN COMPLETED TO ACCEPTABLE TOLERANCES PRIOR TO BEGINNING ANY WORK.
4. ALL WORK COMPLETED SHALL BE GUARANTEED FOR ONE (1) FULL YEAR AFTER SUBSTANTIAL COMPLETION OF THE PROJECT.
5. LANDSCAPED AREAS TO RECEIVE 4" OF APPROVED TOPSOIL IN LAWN AREAS AND 6" IN ALL SHRUB PLANTING AREAS.
6. ALL LANDSCAPE AREAS SHALL BE IRRIGATED BY AN AUTOMATIC IRRIGATION SYSTEM - SEE IRRIGATION SPECIFICATIONS SHEET L100.
7. CONTRACTOR SHALL PROVIDE TEMPORARY WATER TO EXISTING STREET TREES AND LANDSCAPING FOR AREAS AFFECTED BY WORK OF THIS CONTRACT, INCLUDING CONNECTIONS TO TEMPORARY IRRIGATION WATER AND CONTROLS.
8. COORDINATE WITH GENERAL CONTRACTOR FOR THE PROTECTION AND WATERING OF EXISTING PLANT MATERIAL IDENTIFIED AS 'TO REMAIN' UNTIL THE NEW IRRIGATION SYSTEM IS OPERABLE.
9. SHRUB PLANTING AREAS SHALL BE MULCHED WITH 3" OF APPROVED 1 1/4" BASALT ROCK MULCH UNLESS OTHERWISE NOTED. GROUND COVER AREAS SHALL BE DRESSED WITH 1" - 2" OF APPROVED 1 1/4" BASALT ROCK MULCH UNLESS OTHERWISE NOTED. FINISHED GRADE OF MULCH SHALL NOT BE ABOVE OR MORE THAN 1" BELOW ADJOINING SURFACES.
10. LAWN AREAS SHALL BE SODDED WITH LOCALLY PRODUCED SEED MIX CONSISTING OF A MINIMUM THREE VARIETIES OF BLUE GRASS SEED, AND AN ANNUAL RYE GRASS.
11. PLANT SYMBOLS SHALL DICTATE COUNT.

PLANT SCHEDULE

TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	DETAIL
	7	CARPINUS BETULUS 'FRANS FONTAINE' / FRANS FONTAINE HORNBEAM	B & B	2"CAL	2/L501
SHRUBS	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**		
	19	BERBERIS THUNBERGII `CRIMSON PYGMY` / CRIMSON PYGMY BARBERRY	2 GAL		4/L501
	57	CALAMAGROSTIS ACUTIFOLIA `KARL FOERSTER` / FOERSTER`S REED GRASS	1 GAL		4/L501
	48	PENNISETUM ALOPECUROIDES `HAMELN` / HAMLN DWARF FOUNTAIN GRASS	1 GAL		4/L501

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION	QTY	DETAIL
1	12" WIDE X 4" THICK CONCRETE MOW STRIP WHERE TURFGRASS MEETS BUILDING WALLS		5/L501
2	EXISTING TREE: PRESERVE AND PROTECT		2/L501
3	24" CONCRETE MOW STRIP AT FENCE		6/L501
SYMBOL	**DESCRIPTION**	**QTY**	**DETAIL**
	SODDED BLUEGRASS LAWN	11,758 SF	
	1 1/4" BASALT ROCK MULCH OVER WEED BARRIER FABRIC	1,731 SF	



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STATE OF WASHINGTON · THOMAS C. SHERRY · NO. 489 EXP. 07/08/2022 · LICENSED LANDSCAPE ARCHITECT

STAMP

SHEET TITLE: LANDSCAPE PLAN

PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By
1	12/10/2021	GMS

PROJ. NO. 2021-10628
DRAWN GMS
CHECKED TCS
DATE 12/10/2021

SHEET L2.1

GENERAL PLANTING NOTES:

1. REFER TO SPECIFICATIONS ON SHEET L100. ALL PERTINENT INFORMATION HAS BEEN PROVIDED ON THESE PLAN SHEETS. ENSURE THAT ALL RELATED ARCHITECTURAL AND CIVIL SHEETS ARE THOROUGHLY REVIEWED AS REFERENCE TO INFORMATION ON THE LANDSCAPE AND IRRIGATION SHEETS.
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11. PLANT SYMBOLS SHALL DICTATE COUNT.

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PLANT SCHEDULE

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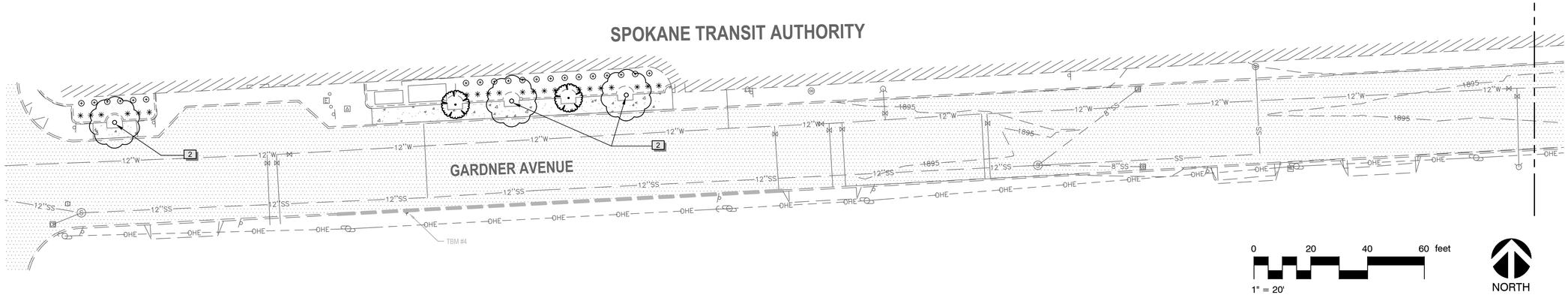

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STATE OF WASHINGTON · THOMAS C. SHERRY · LICENSED LANDSCAPE ARCHITECT · NO. 489 EXP. 07/08/2022

STAMP

SHEET TITLE: **LANDSCAPE PLAN**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

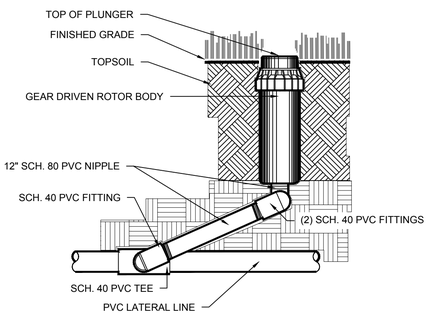
CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS		
No.	Date	By
1	12/10/2021	GMS

BID SET

PROJ. NO.	2021-10628
DRAWN	GMS
CHECKED	TCS
DATE	12/10/2021

SHEET: L2.2

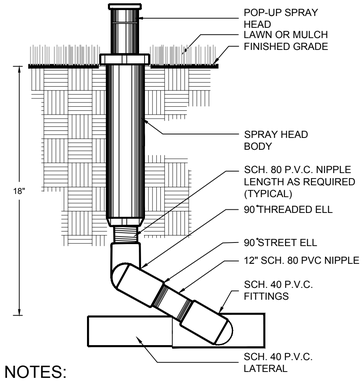


NOTES:

1. REFER TO PLANS FOR MORE INFORMATION.
2. INSTALL AS PER MANUFACTURER'S SPECIFICATIONS.
3. ADJUST ARC ACCORDINGLY TO PROVIDE 100% COVERAGE.

1 GEAR DRIVEN HEAD

NTS — SPVV

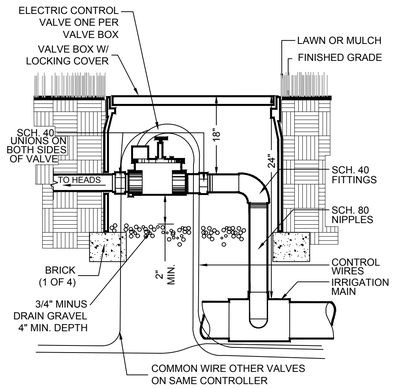


NOTES:

1. INSTALL AS PER MANUFACTURERS SPECIFICATIONS.
2. ADJUST ARC ACCORDINGLY TO PROVIDE 100% COVERAGE.

2 SPRAY HEAD

NTS — SPVV

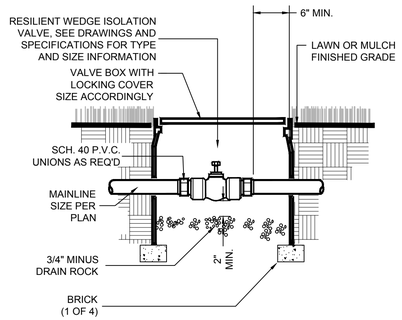


NOTES:

1. TYPICAL ELECTRIC CONTROL VALVE VERIFY WITH VALVE SCHEDULE FOR SIZE, PRESSURE REGULATION AND TYPE.

3 ELECTRIC VALVE

NTS — SPVV

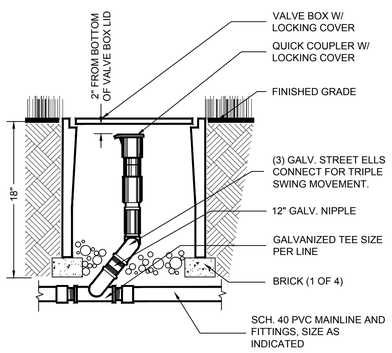


NOTES:

1. REFER TO IRRIGATION SHEET FOR LOCATIONS
2. REFER TO SPECIFICATIONS FOR INSTALLATION INSTRUCTIONS.

4 ISOLATION VALVE

NTS — SPVV

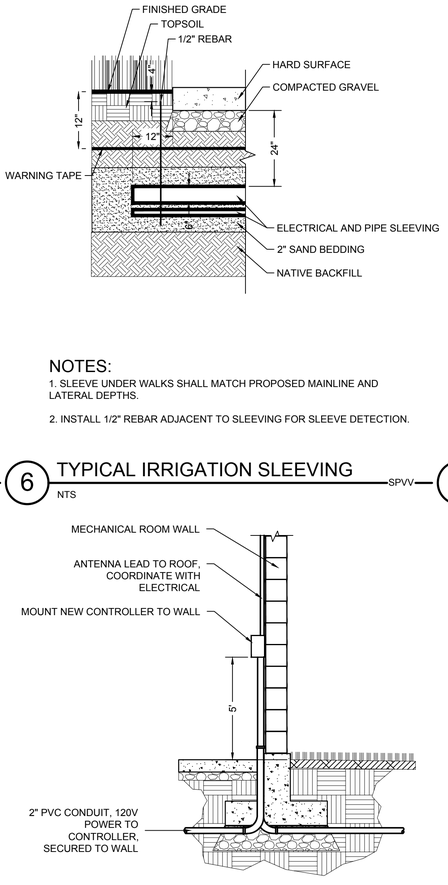


NOTES:

1. INSTALL 4" OF DRAINAGE ROCK IN THE BOTTOM OF QUICK COUPLER BOXES.
2. INSTALL LOCKING COVER ON QUICK COUPLER VALVE.

5 QUICK COUPLING VALVE IN BOX

NTS — SPVV

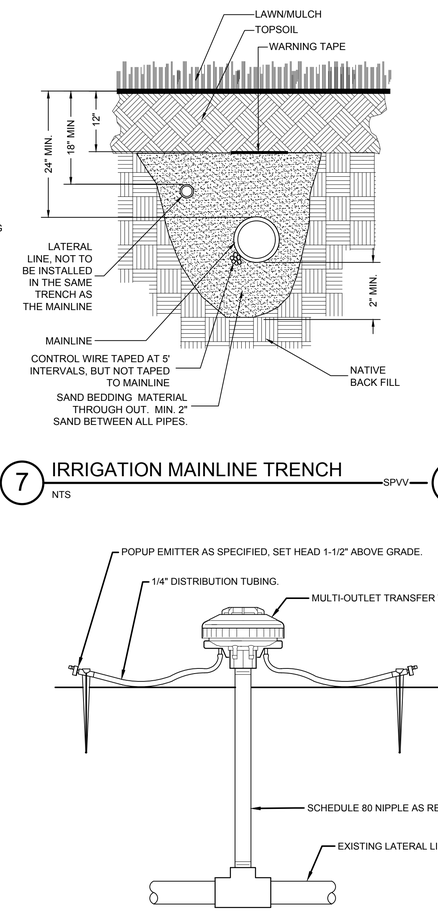


NOTES:

1. SLEEVE UNDER WALKS SHALL MATCH PROPOSED MAINLINE AND LATERAL DEPTHS.
2. INSTALL 1/2" REBAR ADJACENT TO SLEEVING FOR SLEEVE DETECTION.

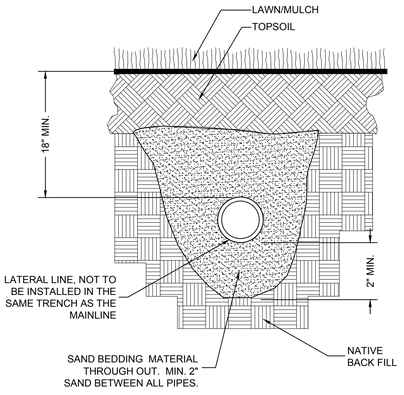
6 TYPICAL IRRIGATION SLEEVING

NTS — SPVV



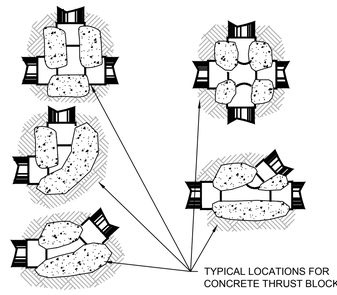
7 IRRIGATION MAINLINE TRENCH

NTS — SPVV



8 IRRIGATION LATERAL TRENCH

NTS — SPVV



NOTES:

1. INSTALL THRUST BLOCKS AT ALL CHANGES IN DIRECTION ON MAINLINE ONLY.
2. ALL CONCRETE TO BE RATED AT 3000 PSI AT 28 DAYS.
3. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. MINIMUM OF 5 GAL. VOLUME OF CONCRETE PER THRUST BLOCK.
5. AREA TO RECEIVE THRUST BLOCK SHALL BE WRAPPED WITH APPROVED FILTER FABRIC PRIOR TO PLACEMENT OF CONCRETE.
6. CONTRACTOR TO ADD 8MIL LAYER OR 2EA. 4MIL LAYERS OF POLYETHYLENE SHEETING BETWEEN JOINT AND CONCRETE.

9 CONCRETE THRUST BLOCK

NTS — SPVV

NOTES:

1. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
2. CONTROLLER TO BE HARDWIRED INTO SEPARATE JUNCTION BOX PROVIDED BY ELECTRICAL CONTRACTOR

10 INTERIOR WALL MOUNT CONTROLLER

NTS — SPVV

11 POPUPS W/MULTI-TRANSFER AT GRADE

3" = 1'-0" — PRJ-2062-04

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STATE OF WASHINGTON · THOMAS C. SHERRY · LICENSED LANDSCAPE ARCHITECT · NO 489 EXP. 07/08/2022

SHEET TITLE: IRRIGATION DETAILS

PROJECT NAME & ADDRESS: FUELING FACILITY, 1229 W. Boone Avenue, Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority, 1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By
1	12/10/2021	GMS

BID SET

PROJ. NO. 2021-10628
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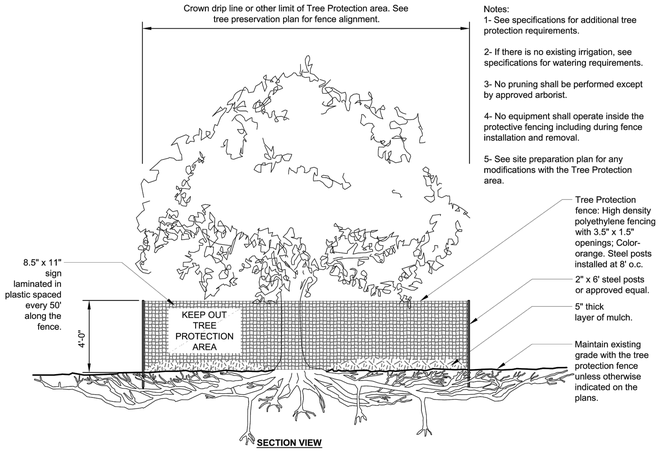
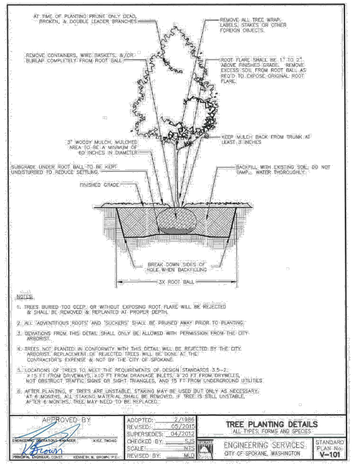
CHECKED TCS
DATE 12/10/2021

SHEET L5.0



1 TREE PROTECTION FENCING

NTS — SPVV



2 CITY OF SPOKANE TREE PLANTING

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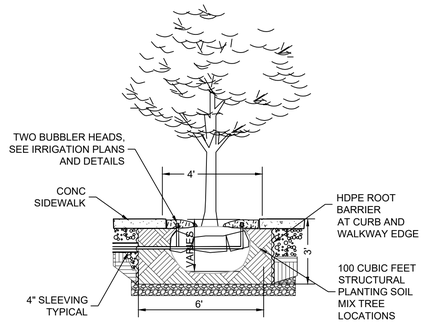
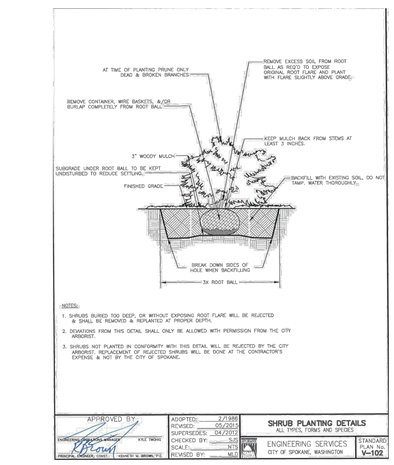


NOTES:

1. REFER TO DETAIL #2 FOR TREE PLANTING INFORMATION.

3 TREE PLANTING IN WALK

NTS — SPVV



4 CITY OF SPOKANE SHRUB PLANTING

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NOTES:

1. REFER TO DOCUMENTATION FOR MORE INFORMATION.
2. INSTALL 1/2" EXPANSION JOINT MATERIAL WHEN CURBING MEETS ANY OTHER HARD SURFACE AND AT 20' INTERVALS.
3. CONCRETE TO BE 2800 PSI AT 28 DAYS. SUBMIT TESTING RESULTS FOR RECORDS.

5 12" CONCRETE MOW STRIP

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NOTES:

1. REFER TO PLANS AND SPECIFICATIONS FOR FENCE TYPE, SIZE, AND INSTALLATION INFORMATION.
2. CONCRETE TO BE RATED 3000 PSI @ 28 DAYS.
3. FOOTING TO BE A MINIMUM OF 34" DEEP.

6 FENCE MOW STRIP IN LAWN

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GENERAL STRUCTURAL NOTES

GENERAL:

THE STRUCTURAL CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE STRUCTURE IS DESIGNED TO BE A STABLE UNIT AS A COMPLETED WHOLE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DESIGN, ERECT AND INSPECT TEMPORARY SHORES, BRACES, ETC. TO SUPPORT THE STRUCTURE AGAINST ALL ANTICIPATED LOADS INCLUDING GRAVITY, WIND AND LATERAL EARTH PRESSURE UNTIL ITS COMPLETION. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THESE METHODS OF CONSTRUCTION. CONSTRUCTION MATERIAL SHALL BE PLACED ON FRAMED FLOORS AND ROOFS SUCH THAT THE DESIGN LIVE LOADS ARE NOT EXCEEDED.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS PRIOR TO STARTING CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH THE ENGINEER.

WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE LATEST EDITIONS OF THE INTERNATIONAL BUILDING CODE AND TESTING STANDARDS.

NOTES AND DETAILS ON THE DRAWINGS TAKE PRECEDENCE OVER THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO SPECIFIC DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT. "TYPICAL" DETAILS ARE NOT FLAGGED ON THE DRAWINGS, BUT APPLY UNLESS NOTED OTHERWISE.

ALL STRUCTURAL ENGINEERING DESIGN PROVIDED BY OTHERS SHALL BE SUBMITTED FOR REVIEW AND SHALL BEAR THE SEAL OF A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

COORDINATION:

ALL DRAWINGS ARE CONSIDERED TO BE PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE DRAWINGS AND SPECIFICATIONS AMONG THE SUBCONTRACTORS PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES THAT ARE FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO START OF CONSTRUCTION. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ENGINEER.

COORDINATION SHALL INCLUDE, BUT NOT BE LIMITED TO, VERIFYING THE LOCATION AND WEIGHT OF ALL MECHANICAL AND ELECTRICAL EQUIPMENT AS WELL AS THE SIZE AND LOCATION OF ALL MECHANICAL OPENINGS IN ROOFS, FLOORS AND WALLS, UNLESS OTHERWISE NOTED ON THE DRAWINGS. DO NOT PENETRATE ANY STRUCTURAL ELEMENTS SUCH AS BEAMS, COLUMNS, WALLS, SLABS, ETC. WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

SHOP DRAWINGS:

THE CONTRACTOR SHALL REVIEW AND APPROVE ALL SHOP DRAWINGS PRIOR TO ENGINEERING REVIEW. SUBMIT ELECTRONIC COPY FOR ENGINEERING REVIEW THAT INCLUDES CONTRACTOR'S REVIEW COMMENTS. DOCUMENT WILL BE MARKED AND RETURNED ELECTRONICALLY.

CODE:

2018 EDITION OF THE INTERNATIONAL BUILDING CODE.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 9TH EDITION

DESIGN LOADS:

LID DEAD LOAD ---------- 100 PSF
SNOW LOAD ---------- SEE SNOW LOADS BELOW
LIVE LOAD ---------- HL-93

RISK CATEGORY---------- II

SEISMIC:

IMPORTANCE FACTOR (Ie) ---------- 1.0
Sds ---------- 0.318
Sd1 ---------- 0.177
Ss ---------- 0.307
S1 ---------- 0.112
SEISMIC DESIGN CATEGORY ---------- C
SITE CLASS ---------- D

SNOW:

GROUND SNOW LOAD ---------- 39 PSF
SNOW EXPOSURE FACTOR ---------- 1.0
SNOW LOAD IMPORTANCE FACTOR (Is) ---------- 1.0
THERMAL FACTOR ---------- 1.2

FOUNDATION:

ALLOWABLE SOIL BEARING PRESSURE = 2500 PSF PER GEOTECHNICAL REPORT BY GEOENGINEERS, DATED FEBRUARY 15, 2015. BEAR ALL FOOTINGS ON "A MINIMUM 8-INCH-THICK LAYER OF CRUSHED SURFACING BASE COURSE (CSBC)" TO BE PLACED AND COMPACTED AS DESCRIBED IN THE GEOTECHNICAL REPORT.

1 DO NOT PLACE BACKFILL BEHIND RETAINING WALLS BEFORE CONCRETE HAS REACHED FULL DESIGN STRENGTH. WALLS BELOW GRADE SHALL BE BRACED AS REQUIRED TO RESIST LATERAL EARTH PRESSURE UNTIL CONNECTING LIDS ARE COMPLETELY IN PLACE AND HAVE ATTAINED FULL STRENGTH. THE CONTRACTOR SHALL PROVIDE FOR DESIGN, PERMITS AND INSTALLATION OF SUCH BRACING.

AT-REST LATERAL EARTH PRESSURE ---------- 55 PCF
ACTIVE LATERAL EARTH PRESSURE ---------- 35 PCF
COEFFICIENT OF FRICTION ---------- 0.40
SEISMIC SURCHARGE ---------- 5H

CONCRETE:

CONCRETE CONSTRUCTION SHALL CONFORM WITH THE LATEST EDITION OF ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" AND ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". SUBMIT MIX DESIGNS FOR EACH CLASS OF CONCRETE. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE UNLESS NOTED OTHERWISE.

CONCRETE CONTAINING SUPERPLASTICIZING ADMIXTURE SHALL HAVE A SLUMP NOT EXCEEDING 3", TO BE FIELD VERIFIED, PRIOR TO ADDING ADMIXTURE, AND NOT EXCEEDING 8" AT PLACEMENT. ADDITION OF WATER TO A MIX WITH INSUFFICIENT SLUMP WILL NOT BE PERMITTED, EXCEPT AS ALLOWED PER ASTM C494.

MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED, EXCEPT THAT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND UNDER-FLOOR DUCTS, ETC. CAST CLOSURE POUR AROUND COLUMNS AFTER DEAD LOAD IS APPLIED.

MINIMUM CONCRETE MIX DESIGN REQUIREMENTS SHALL BE AS FOLLOWS:

ITEM	MINIMUM CEMENT CONTENT (SACKS/CY)	28 DAY STRENGTH F'c (PSI)	MAX. SIZE AGGREGATE	AIR ENTR.	MAX. SLUMP
FOOTINGS AND FOUNDATION WALLS	5	4000	1 1/2"	5-7%	3"
EXTERIOR SLAB ON GRADE	5 1/2	4000	1"	5-7%	4"
PRECAST	--	5000	--	--	--

PRECAST CONCRETE:

CONNECTIONS AND REINFORCING SHOWN ON THESE DRAWINGS ARE REQUIRED FOR THE IN-PLACE CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING AND PROVIDING ADDITIONAL REINFORCEMENT AND LIFTING HARDWARE REQUIRED FOR HANDLING AND ERECTION. SUBMIT SHOP DRAWINGS SHOWING MEMBER REINFORCING, EMBEDDED ITEMS, OPENINGS, BLOCKOUTS, ETC.

REINFORCING STEEL:

DEFORMED BARS: ASTM A615 GRADE 40 FOR #3 AND GRADE 60 FOR #4 AND LARGER.

CLEAR CONCRETE COVERAGE (APPLIES UNLESS NOTED OTHERWISE):

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH---------- 3"
FORMED CONCRETE EXPOSED TO EARTH OR WEATHER---------- 2"
FORMED CONCRETE NOT EXPOSED TO EARTH OR WEATHER---------- ½"
FROM TOP SURFACE OF SLAB ON GRADE---------- ½"

WELDING:

WELDING OF REINFORCING STEEL IS PROHIBITED. LAP SPLICES IN CONCRETE: UNLESS NOTED OTHERWISE, LAP SPLICES IN CONCRETE BEAMS, WALLS, SLABS AND FOOTINGS SHALL BE CLASS "B" TENSION LAP SPLICES. STAGGER ALTERNATE SPLICES A MINIMUM OF ONE LAP LENGTH.

PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF FOOTINGS AND WALLS, SPACING SHOWN FOR REINFORCING BARS ARE MAXIMUM ON CENTERS. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. SECURELY TIE ALL BARS IN POSITION PRIOR TO PLACING CONCRETE.

STRUCTURAL STEEL:

1 ROLLED SHAPES OTHER THAN WIDE-FLANGE SHAPES,
ALL PLATES, BARS AND RODS ---------- ASTM A36, Fy = 36 KSI
TUBULAR STEEL---------- ASTM A500, GRADE B, Fy = 46 KSI
DEFORMED BAR ANCHORS ---------- ASTM A496, Fy = 70 KSI
HEADED ANCHOR STUDS ---------- ASTM A108-69T, Fy = 50 KSI

FABRICATION AND ERECTION:

LATEST AISC AND AWS CODES APPLY. FABRICATE AND ERECT IN ACCORDANCE WITH LATEST EDITION OF AISC "SPECIFICATION FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS". SPLICING OF STRUCTURAL MEMBERS IS NOT PERMITTED UNLESS NOTED ON THE DRAWINGS. ALL BEAMS SHALL BE ERECTED WITH THE NATURAL CAMBER UPWARDS.

WELDING:

ALL WELDING SHALL BE BY CERTIFIED WELDERS HAVING CURRENT EXPERIENCE IN TYPE OF WELD SHOWN ON DRAWINGS OR NOTES. CERTIFICATES SHALL BE THOSE ISSUED BY AN ACCEPTED TESTING AGENCY. ALL WELDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS D1.1 "STRUCTURAL WELDING CODE - STEEL" OR ALTERNATE AWS CODES AS APPLICABLE. ALL STRUCTURAL WELDING PROCESSES SHALL MEET THE H2 LOW HYDROGEN CRITERIA OF AWS D1.1 ANNEX I UNLESS OTHERWISE NOTED. USE 70XX ELECTRODES OR EQUIVALENT WIRE. SHOP WELDS AND FIELD WELDS SHALL BE SHOWN ON SHOP DRAWINGS. ALL COMPLETE PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING AGENCY. ALL DEFORMED BAR ANCHORS, DOWEL BAR ANCHORS, HEADED STUDS, AND THREADED STUDS SHALL BE END WELDED PER MANUFACTURER'S RECOMMENDATIONS.

BOLTS:

ALL BOLTS, ANCHOR BOLTS, EXPANSION BOLTS, ETC., SHALL BE INSTALLED WITH STEEL WASHERS. TYPE N BOLTS PER LATEST EDITION OF AISC "SPECIFICATION FOR STRUCTURAL JOINTS HIGH-STRENGTH BOLTS" AND MAY BE TIGHTENED TO THE SNUG-TIGHT CONDITION AS DEFINED BY AISC UNLESS NOTED OTHERWISE. HILTI BOLTS AND ANCHORS MAY BE SUBSTITUTED WITH AN APPROVED ICC RATED PRODUCT.

DEFERRED SUBMITTALS:

THE FOLLOWING PORTIONS OF THE DESIGN ARE NOT SUBMITTED TO THE BUILDING OFFICIAL AT THE TIME OF PERMIT APPLICATION BUT SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION, AFTER ENGINEERING REVIEW. DEFERRED SUBMITTALS REQUIRE STAMPED AND SEALED DRAWINGS AND CALCULATIONS BY AN ENGINEER REGISTERED IN WASHINGTON STATE. VAULT LIDS TO BE DESIGNED FOR HL-93 LOADING. THE DEFERRED SUBMITTALS FOR THIS PROJECT ARE:

1. PRECAST VAULT LIDS

ADJACENT STRUCTURE MONITORING:
STRUCTURES ADJACENT TO THE SCOPE OF WORK AND THE SHORING WALL WITHIN THE WORK AREA SHALL BE MONITORED PER THE BUILDING AND SHORING MONITORING PLAN. THIS MONITORING PLAN IS TO BE CONDUCTED BY A THIRD PARTY HIRED BY THE OWNER. CONTRACTOR SHALL PROTECT BUILDING AND SHORING MONITORING DEVICES FROM DAMAGE AND MAINTAIN ACCESS TO MONITORING INSTRUMENTATION AT ALL TIMES. CONTRACTOR SHALL SCHEDULE AND PERFORM WORK IN A MANNER THAT WILL FACILITATE MONITORING AND VIBRATION MEASUREMENT. STRUCTURES TO BE MONITORED INCLUDE THE SHORING WALL, STA MAINTENANCE FACILITY, ADJACENT REI RETAINING WALL, AND THE REI BUILDING.

VIBRATION MONITORING:
VIBRATION MONITORING WILL BE PROVIDED BY A THIRD PARTY HIRED BY THE OWNER AS PART OF THE STRUCTURE MONITORING PLAN. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF ALL EXCAVATION AND DRILLING, NO BLASTING IS ALLOWED. WORK IS TO BE IN COMPLIANCE WITH THE CONSTRUCTION VIBRATION MONITORING THRESHOLDS LISTED BELOW. VIBRATION CRITERIA WILL BE MEASURED IN PEAK PARTICLE VELOCITY (PPV) IN INCHES/SECOND.

CONSTRUCTION VIBRATION MONITORING THRESHOLDS:

LOCATION	MAXIMUM PPV (IN/S) [CONTINUOUS VIBRATION SOURCES] (a)	MAXIMUM PPV (IN/S) IMPACT VIBRATION SOURCES (b)
STA BUILDING	0.5	0.5
REI RETAINING WALL	0.3	0.5
REI BUILDING	0.2	0.5

(a) CONTINUOUS VIBRATION CONSISTS OF EQUIPMENT SUCH AS BULL DOZERS, TRUCKS, JACKHAMMERS, COMPACTORS, ETC. THAT PRODUCE CONTINUOUS VIBRATION.

(b) IMPACT VIBRATION CONSISTS OF ACTIVITIES SUCH AS DROP CHISELS FOR ROCK BREAKING, PAVEMENT BREAKERS AND EQUIPMENT THAT PRODUCES A SHORT TERM VIBRATION. THE THRESHOLD VALUES ARE THE MAXIMUM ALLOWABLE, BUT MAY BE REVISED AS A HISTORY OF DATA IS DEVELOPED. STOP ALL CONSTRUCTION ACTIVITIES IF THRESHOLD VALUES ARE REACHED OR EXCEEDED AT ANY TIME DURING CONSTRUCTION UNTIL INTERPRETATION OF THE VIBRATION MONITORING DATA AND AN ASSESSMENT OF THE VIBRATION SOURCE(S) CAN BE MADE. VIBRATION MITIGATION MAY INCLUDE A REVIEW AND MODIFICATION OF CONSTRUCTION METHODS AND/OR EQUIPMENT AND EVALUATION OF CONSTRUCTION TRAFFIC AND ROUTES.

1 POST-INSTALLED ANCHORAGE:

REBAR
HILTI HIT-RE 500 V3
SIMPSON SET-XP
EXPANSION ANCHORS
HILTI KWIK BOLT TZ2
SIMPSON STRONG-BOLT 2
ADHESIVE ANCHORS
HILTI HIT-HY 200-A OR 200-R
SIMPSON SET-XP OR AT-XP
SCREW ANCHORS
HILTI KWIK KH-EZ
SIMPSON TITEN HD

POWDER ACTUATED FASTENERS (SHOT PINS) IN CONCRETE OR GROUT FILLED CMU

HILTI X-U AND X-U 15 (0.157 ")
SIMPSON PDP SERIES (0.145 " MIN)

INSTALLATION AND SPECIAL INSPECTION:

ADHESIVE ANCHORS MUST BE INSTALLED IN CONCRETE AGED A MINIMUM OF 21 DAYS (ACI 318-14 17.1.2) AND IN GROUTED MASONRY THAT HAS REACHED IT'S MINIMUM SPECIFIED COMPRESSIVE STRENGTH. ADHESIVE ANCHORS INSTALLED IN HORIZONTAL OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS SHALL BE CONTINUOUSLY INSPECTED DURING INSTALLATION BY AN INSPECTOR SPECIALLY APPROVED FOR THAT PURPOSE BY THE BUILDING OFFICIAL (ACI 318-14 17.8.2.4) PROVIDE SPECIAL INSPECTION FOR ALL MECHANICAL AND ADHESIVE ANCHORS PER THE APPLICABLE BUILDING CODE AND PER THE CURRENT ICC-ES REPORT (IBC 2018 TABLE 1705.3 NOTE B).

ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE OR CMU. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.

EXISTING REINFORCING BARS IN THE CONCRETE OR CMU STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF THE CONCRETE OR CMU ANCHORS, BY HILTI FERROSCAN, GPR, X-RAY OR OTHER MEANS APPROVED BY ENGINEER OF RECORD. DO NOT CUT REBAR, RELOCATE ANCHOR, OR REDUCE EMBEDMENT WITHOUT WRITTEN APPROVAL BY THE ENGINEER OF RECORD.

THREADED RODS FOR ADHESIVE ANCHORS SHALL BE CLEAN THREADED ROD. FOR USE IN INTERIOR LOCATIONS THREADED ROD TO BE ASTM F1554, GRADE 36. THREADED ROD FOR USE IN INTERIOR APPLICATIONS WITH HILTI ADHESIVE TO CONCRETE AND WITH DEWALT ADHESIVE TO GROUTED MASONRY SHALL HAVE A 0.0002-INCH THICK ZINC ELECTROPLATED COATING COMPLYING WITH ASTM B633 SC 1. THREADED ROD USED AT EXTERIOR CONDITIONS OR WHERE THE ANCHOR IS IN CONTACT WITH PRESERVATIVE-TREATED OR FIRE -RETARDANT-TREATED LUMBER SHALL BE EITHER STAINLESS STEEL OR SHALL HAVE A ZINC COATING. STAINLESS STEEL THREADED RODS SHALL CONFORM TO ASTM A193, GRADE B6, B8, OR B8M FOR SIMPSON ADHESIVE PRODUCTS TO MASONRY AND WITH REBAR TO CONCRETE AND SHALL CONFORM TO ASTM F593 (AISI 304 OR 316) FOR HILTI AND DEWALT ADHESIVE PRODUCTS AND FOR SIMPSON ADHESIVE WITH THREADED ROD TO CONCRETE. ZINC COATING ON THREADED RODS SHALL BE HOT-DIPPED IN ACCORDANCE WITH ASTM A153 CLASS C OR D COATING.

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DAVID L PEDEN — STATE OF WASHINGTON — 27251 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
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SHEET TITLE: GENERAL STRUCTURAL NOTES

PROJECT NAME & ADDRESS: FUELING FACILITY
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IBC TABLE 1705.6

REQUIRED VERIFICATION AND INSPECTION OF SOILS

	TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1.	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	X
2.	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X
3.	PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	X
4.	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	-
5.	PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X

IBC TABLE 1705.3

REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

	TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[B]	IBC REFERENCE
1.	INSPECTION REINFORCEMENT, AND VERIFY PLACEMENT.	-	X	ACI 318 CH. 20, 25.2, 25.3, 26.6.1 - 26.6.3	1908.4
2.	INSPECT ANCHORS CAST IN CONCRETE.	-	X	ACI 318: 17.8.2	-
3.	INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS. [B] a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	X -	- X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	-
4.	VERIFYING USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
5.	PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C172 ASTM C31 ACI 318: 26.4, 26.12	1908.10
6.	INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 26.5	1908.6, 1907.7, 1908.8
7.	VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3 - 26.5.5	1908.9
8.	INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	-	X	ACI 318: CH. 26.8	-
9.	INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: 26.11.1.2 (b)	-

NOTES:

A. WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.

B. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFFESIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

AISC 360-16 TABLE N5.4 STRUCTURAL STEEL

INSPECTION TASKS FOR WELDING

INSPECTION TASKS PRIOR TO WELDING

VERIFICATION AND INSPECTION	QC	QA	REFERENCED STANDARD
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	P	O	AISC 360-16 TABLE N5.4-1
WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	P	P	
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P	
MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O	
WELDER IDENTIFICATION SYSTEM [1]	O	O	
FIT-UP OF GROOVE WELDS (INLCUDING JOINT GEOMETRY) • JOINT PREPARATION • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION) • BACKING TYPE AND FIT (IF APPLICABLE)	O	O	
FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K- JOINTS WITHOUT BACKING (INLCUDING JOINT GEOMETRY) • JOINT PREPARATION • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	P	O	
CONGIFURATION AND FINISH OF ACCESS HOLES	O	O	
FIT-UP OF FILLET WELDS • DIMENSIONS (ALIGNMENT, GAPS AT ROOT) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	O	O	
CHECK WELDING EQUIPMENT	O	---	

INSPECTION TASKS DURING WELDING

VERIFICATION AND INSPECTION	QC	QA	REFERENCED STANDARD
CONTROL AND HANDLING OF WELDING CONSUMABLES • PACKAGING • EXPOSURE CONTROL	O	O	AISC 360-16 TABLE N5.4-2
NO WELDING OVER CRACKED TACK WELDS	O	O	
ENVIRONMENTAL CONDITIONS • WIND SPEED WITHIN LIMITS • PRECIPITATION AND TEMPERATURE	O	O	
WPS FOLLOWED • SETTINGS ON WELDING EQUIPMENT • TRAVEL SPEED • SELECTED WELDING MATERIALS • SHIELDING GAS TYPE/FLOW RATE • PREHEAT APPLIED • INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.) • PROPER POSITION (F, V, H, OH)	O	O	
WELDING TECHNIQUES • INTERPASS AND FINAL CLEANING • EACH PASS WITHIN PROFILE LIMITATIONS • EACH PASS MEETS QUALITY REQUIREMENTS	O	O	
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	P	P	

INSPECTION TASKS AFTER WELDING

VERIFICATION AND INSPECTION	QC	QA	REFERENCED STANDARD
WELDS CLEANED	O	O	AISC 360-16 TABLE N5.4-3
SIZE, LENGTH AND LOCATION OF WELDS	P	P	
WELDS MEET VISUAL ACCEPTANCE CRITERIA • CRACK PROHIBITION • WELD/BASE-METAL FUSION • CRATER CROSS SECTION • WELD PROFILES • WELD SIZE • UNDERCUT • POROSITY	P	P	
ARC STRIKES	P	P	
k-AREA[2]	P	P	
WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES [3]	P	P	
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P	
REPAIR ACTIVITIES	P	P	
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P	
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR	O	O	

NOTES:

1. THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.
2. WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA. VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 IN (75 mm) OF THE WELD.
3. AFTER ROLLED HEAVY SHAPES (SEE SECTION A3.1c) AND BUILT-UP HEAVY SHAPES ACCESS HOLE FOR CRACKS.

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DAVID L PEDEN
STATE OF WASHINGTON
27251
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
12/10/2021

SHEET TITLE
SPECIAL INSPECTION TABLES

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

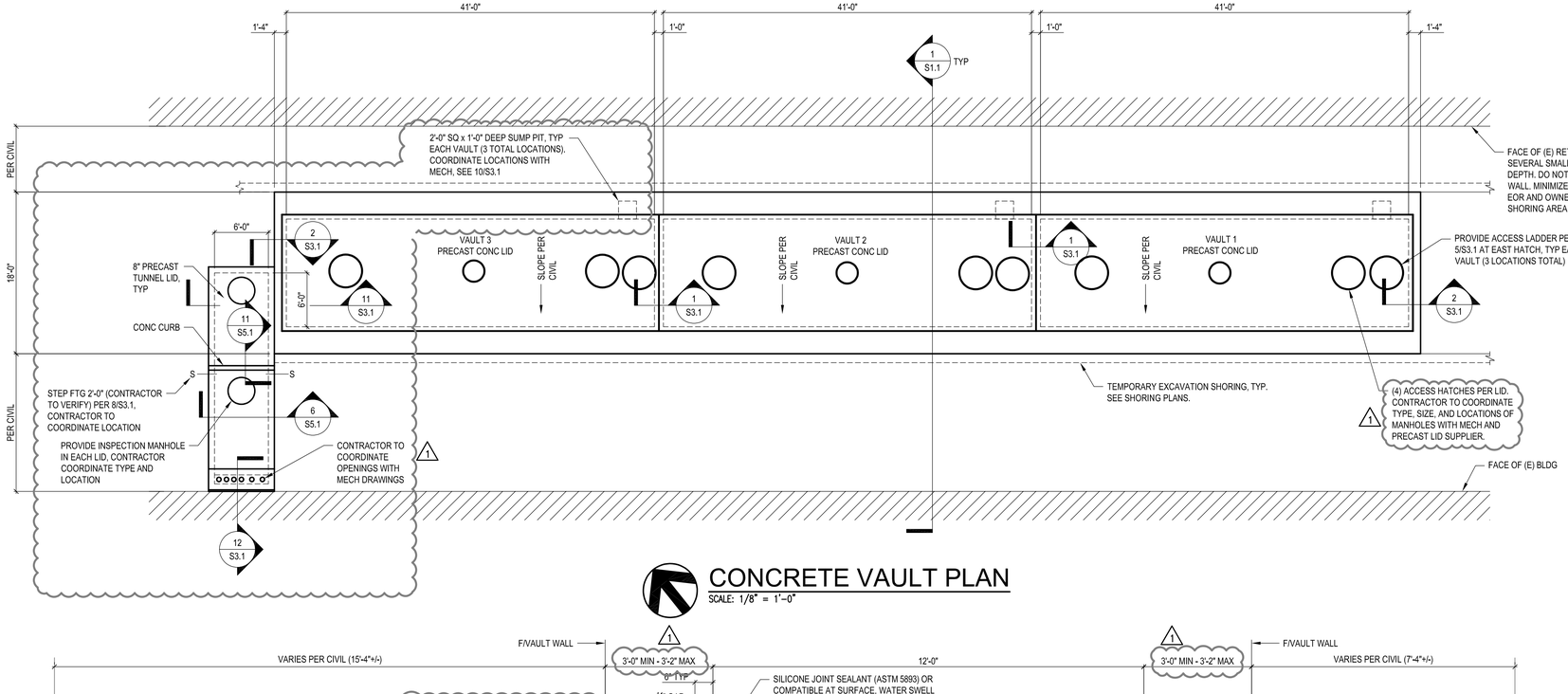
REVISIONS

No.	Date	By
1	12.10.2021	JDB

PROJ. NO. 2021-10628
DRAWN JDB
CHECKED KGU
DATE 12/10/2021

BID SET

SHEET S0.2



NOTES:
1. CONTRACTOR TO COORDINATE ALL REQUIRED OPENINGS IN PRECAST LIDS WITH MECH, PRECAST SUPPLIER AND TANK SUPPLIER.
2. PRECAST LIDS MIX DESIGN TO CONTAIN A WATERPROOFING ADMIXTURE.
3. CONCRETE CURB PER CIVIL NOT SHOWN.

CONCRETE VAULT PLAN
SCALE: 1/8" = 1'-0"

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

BID SET

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SHEET TITLE
CONCRETE VAULT PLAN AND SECTIONS

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS		
No.	Date	By
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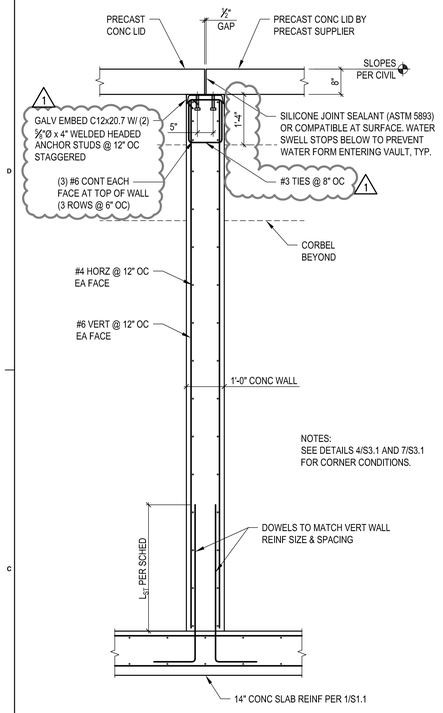
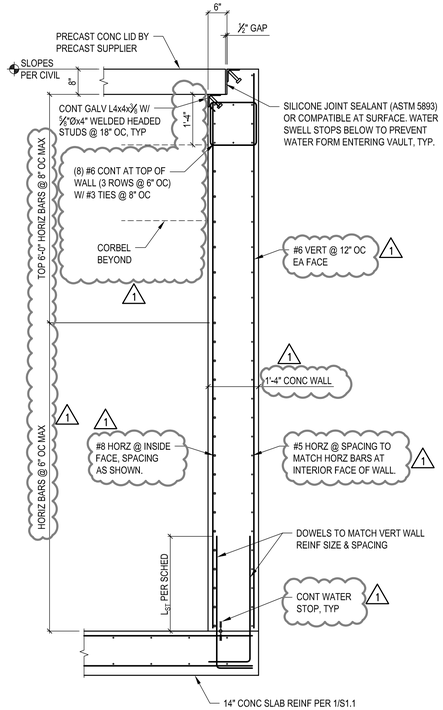
PROJ. NO.	2021-10628
DRAWN	JDB
CHECKED	KGU
DATE	12/10/2021

SHEET
S1.1



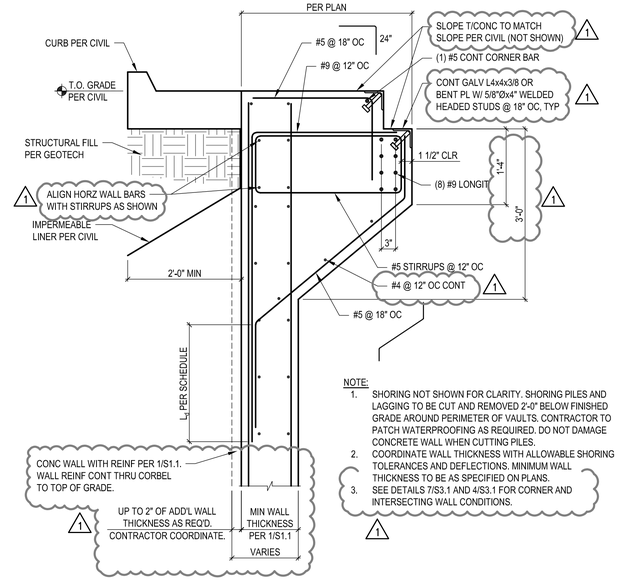
1 WALL SECTION

SCALE: NTS



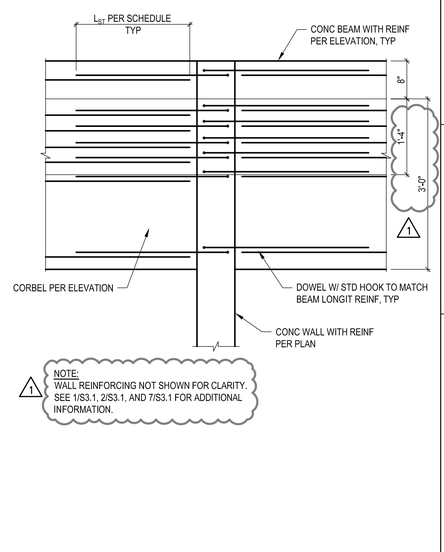
2 WALL SECTION

SCALE: NTS



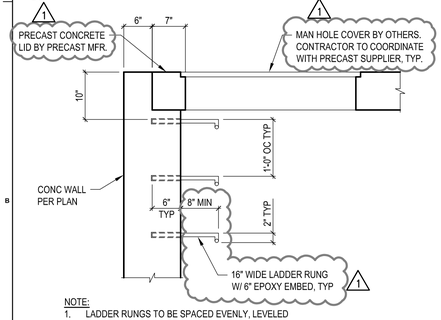
3 CORBEL REINFORCING

SCALE: NTS



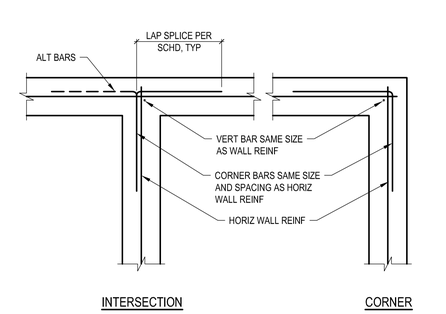
4 BEAM REINFORCING AT WALL

SCALE: NTS



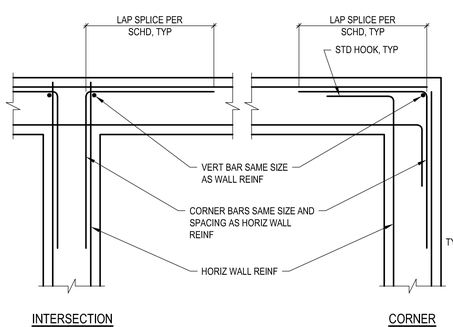
5 TYPICAL LADDER

SCALE: NTS



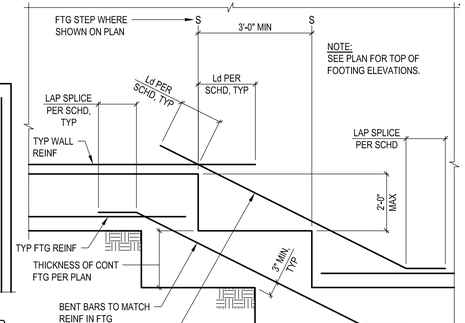
6 TYPICAL CONC REINF AT INTERSECTIONS & CORNERS (SINGLE CURTAIN)

SCALE: NTS



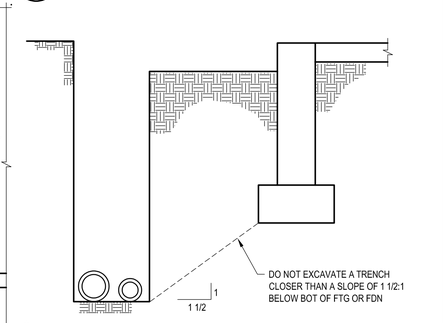
7 TYPICAL CONC REINF AT INTERSECTIONS & CORNERS (DOUBLE CURTAIN)

SCALE: NTS



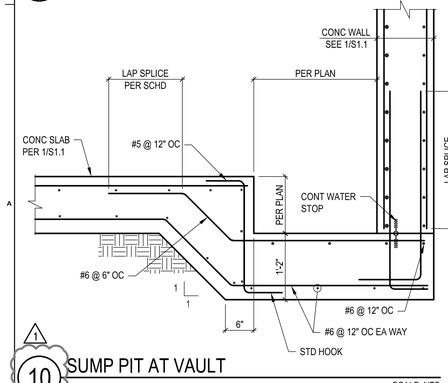
8 TYPICAL CONTINUOUS STEPPED FOOTING

SCALE: NTS



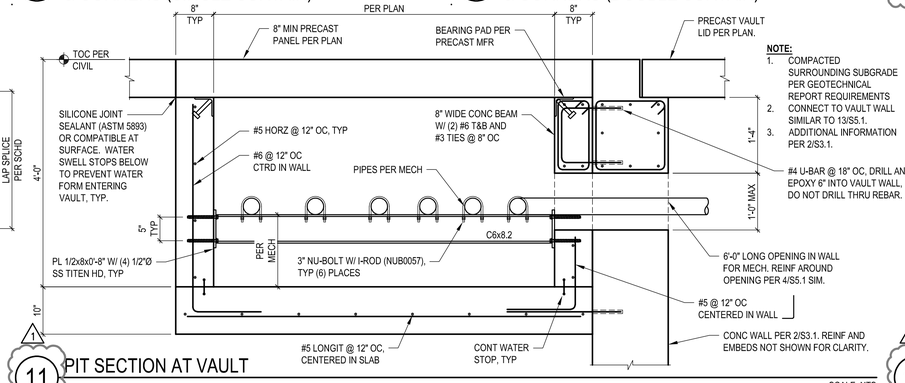
9 TYPICAL TRENCH PARALLEL TO FOUNDATION WALL

SCALE: NTS



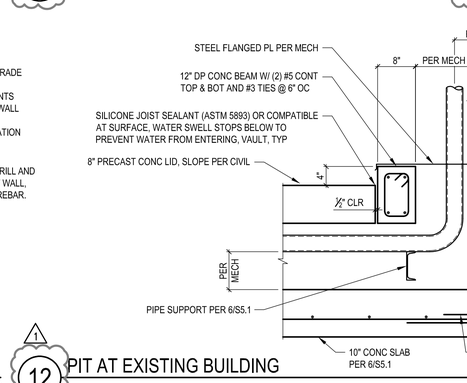
10 SUMP PIT AT VAULT

SCALE: NTS



11 PIT SECTION AT VAULT

SCALE: NTS



12 PIT AT EXISTING BUILDING

SCALE: NTS

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SECTIONS

SHEET TITLE

FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

PROJECT NAME & ADDRESS

Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

CLIENT INFORMATION

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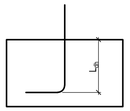
S3.1

SHEET

BAR SIZE	DEVELOPMENT OF STANDARD HOOKS (90°)	
	f'c = 2500 OR 3000 PSI	f'c = 4000 PSI
	L_{dh}	L_{dh}
#3	9"	7"
#4	12"	9"
#5	15"	12"
#6	18"	14"
#7	21"	17"
#8	24"	19"
#9	27"	21"
#10	31"	24"
#11	34"	27"



NOTES:
1. REINFORCING YIELD STRENGTH Fy=60 KSI.
2. APPLICABLE TO UNCOATED BARS ONLY.
3. NORMAL WEIGHT CONCRETE ONLY.
4. NOT APPLICABLE TO JOINTS OF SPECIAL MOMENT FRAMES.
5. IF DESIGN f'c IS NOT SHOWN, USE NEXT LOWEST f'c SHOWN IN TABLE FOR CONSERVATIVE HOOK LENGTH.

1 TYPICAL MINIMUM DEVELOPMENT LENGTHS FOR 90° HOOKED BARS

BAR SIZE	CLASS B TENSION SPLICES, L_{st}				COMPRESSION BARS, Lsc	
	f'c = 2,500 OR 3,000 PSI		f'c = 4,000 PSI		f'c = ALL	
	REGULAR BARS	TOP BARS	REGULAR BARS	TOP BARS	OPEN	ENCLOSED W/ TIES SPACED NOT MORE THAN 4" O.C.
#3	24"	31"	19"	24"	12"	12"
#4	32"	41"	25"	32"	15"	13"
#5	40"	52"	31"	40"	19"	16"
#6	48"	62"	37"	48"	23"	20"
#7	69"	89"	54"	70"	27"	23"
#8	79"	102"	62"	80"	30"	25"
#9	89"	116"	70"	91"	34"	29"
#10	100"	130"	79"	102"	38"	32"
#11	111"	144"	87"	113"	43"	36"

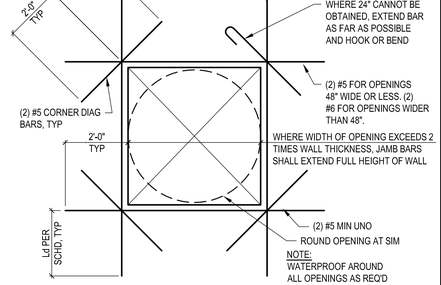
NOTES:
1. UNLESS NOTED OTHERWISE, LAP SPLICES IN CONCRETE BEAMS, WALLS, SLABS AND FOOTINGS SHALL BE CLASS "B" TENSION LAP SPLICES AND LAP SPLICES IN CONCRETE COLUMNS SHALL BE COMPRESSION LAP SPLICES.
2. STAGGER ALTERNATE SPLICES A MINIMUM OF ONE LAP LENGTH.
3. TOP BARS ARE ANY HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCEMENT.
4. REINFORCING YIELD STRENGTH Fy = 60 KSI.
5. FOR BEAMS AND COLUMNS ACI 25.4.2.2 CASE 1 APPLIES (CONCRETE COVER AT LEAST ONE BAR DIAMETER AND CENTER TO CENTER SPACING AT LEAST TWO BAR DIAMETERS).
6. FOR ALL OTHER MEMBERS CASE 1 APPLIES (CONCRETE COVER AT LEAST ONE BAR DIAMETER AND CENTER TO CENTER SPACING AT LEAST THREE BAR DIAMETERS).

2 TYPICAL MINIMUM SPLICE LENGTHS FOR REINFORCING IN CONCRETE

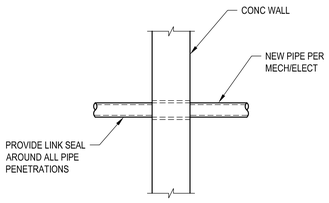
BAR SIZE	TENSION, Ld F_y = 60 KSI			COMPRESSION, L_{dc}
	f'c = 2,500 PSI	f'c = 3000 PSI	f'c = 4,000 PSI	ALL CONCRETE STRENGTHS
#3	18"	16"	14"	9"
#4	24"	22"	19"	12"
#5	30"	27"	24"	15"
#6	36"	33"	28"	18"
#7	53"	48"	42"	21"
#8	60"	55"	47"	24"
#9	68"	62"	54"	27"
#10	76"	70"	60"	31"
#11	85"	77"	67"	34"

NOTES:
1. DEVELOPMENT LENGTHS ARE FOR REINFORCING. BARS SPACED AT LEAST 2 BAR DIAMETERS APART. FOR SPACING LESS THAN 2 BAR DIAMETERS, MULTIPLY BY 1.5.
2. DEVELOPMENT LENGTHS ARE FOR COVER GREATER THAN 1 BAR DIAMETER OR 1 INCH. FOR COVER LESS THAN 1 BAR DIAMETER, MULTIPLY VALUES BY 1.5.

3 TYPICAL MINIMUM DEVELOPMENT LENGTHS FOR REINF CONC



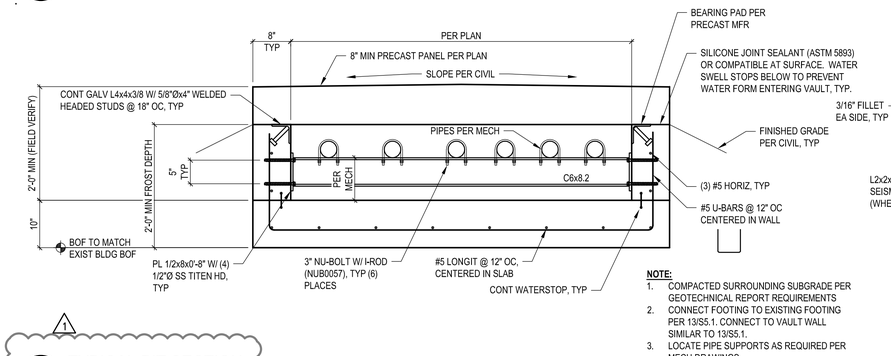
4 TYPICAL OPENING IN CONCRETE WALL



NOTE:
NO CORE DRILLED HOLES WILL BE PERMITTED.

5 TYPICAL PIPE SLEEVE DETAIL

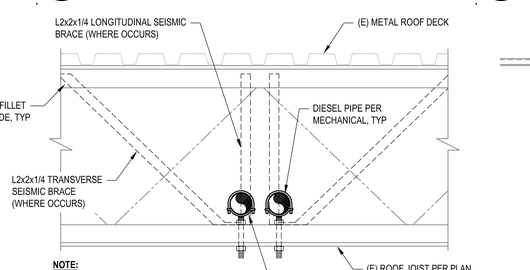
SCALE: NTS



NOTE:
1. COMPACTED SURROUNDING SUBGRADE PER GEOTECHNICAL REPORT REQUIREMENTS
2. CONNECT FOOTING TO EXISTING FOOTING PER 13/S5.1. CONNECT TO VAULT WALL SIMILAR TO 13/S5.1.
3. LOCATE PIPE SUPPORTS AS REQUIRED PER MECH DRAWINGS.

SCALE: NTS

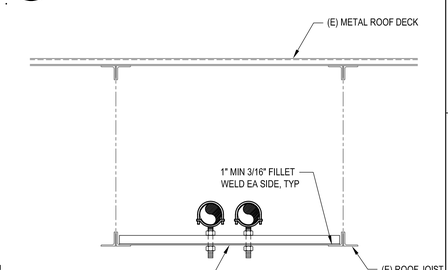
6 TYPICAL PIT SECTION



NOTE:
1. SEE M1.1 FOR APPROXIMATE BRACE LOCATIONS.
2. BRACES TO BE LOCATED AT EACH PIPE WHERE SHOWN.
3. CUT LEG OF ANGLE AS REQUIRED TO BEND AND ATTACH AT EACH END.

7 TYPICAL PIPE SUPPORT - STEEL JOISTS PERPENDICULAR / SKEWED

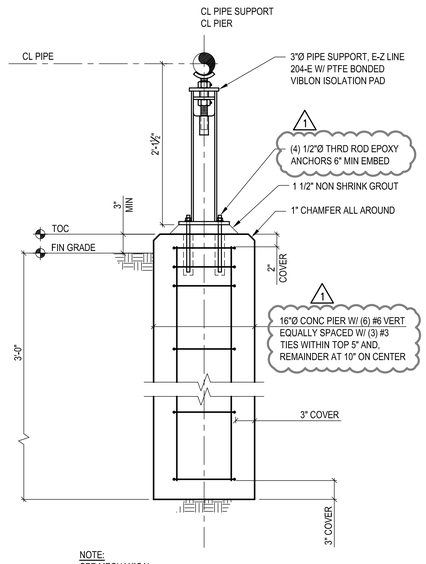
SCALE: NTS



NOTE:
1. NOTE: FOR ADDITIONAL INFORMATION NOT SHOWN REGARDING PIPE SUPPORT AND LATERAL BRACING, SEE 7/S5.1.

8 TYPICAL PIPE SUPPORT - STEEL JOISTS PARALLEL

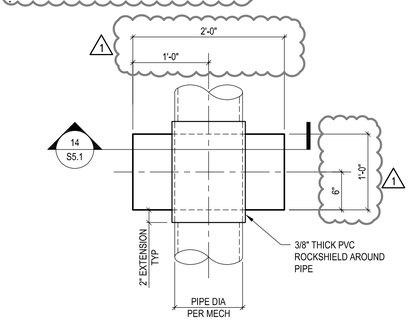
SCALE: NTS



NOTE:
SEE MECHANICAL FOR LOCATION

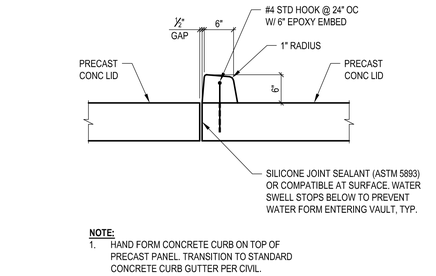
9 TYPICAL 3" PIPE SUPPORT AT EXTERIOR

SCALE: NTS



10 TYPICAL LARGE PIPE DIA FLAT CONCRETE SLEEPER

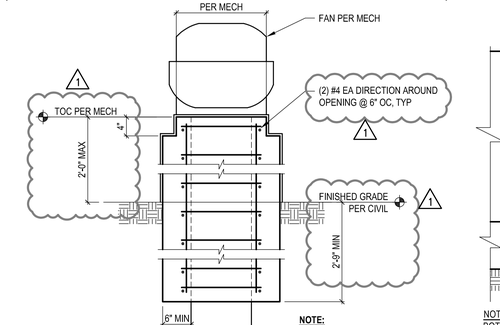
SCALE: NTS



NOTE:
1. HAND FORM CONCRETE CURB ON TOP OF PRECAST PANEL. TRANSITION TO STANDARD CONCRETE CURB GUTTER PER CIVIL.

11 TRENCH LID JOINT

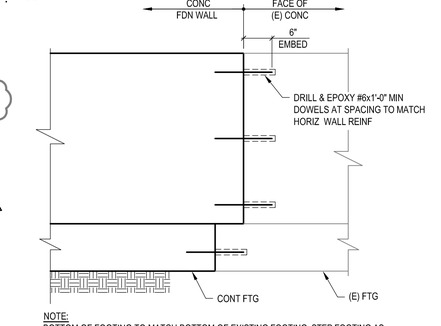
SCALE: NTS



NOTE:
LOCATE PER MECH

12 TYPICAL EXHAUST FAN CURB

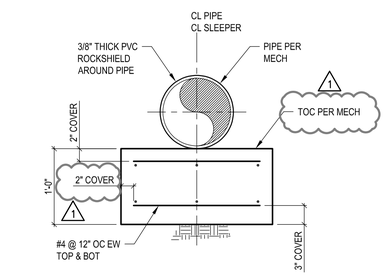
SCALE: NTS



NOTE:
BOTTOM OF FOOTING TO MATCH BOTTOM OF EXISTING FOOTING. STEP FOOTING AS REQUIRED. SEE TYPICAL STEPPED FOOTING DETAIL.

13 TYPICAL FOUNDATION WALL DOWELS AT EXISTING CONSTRUCTION

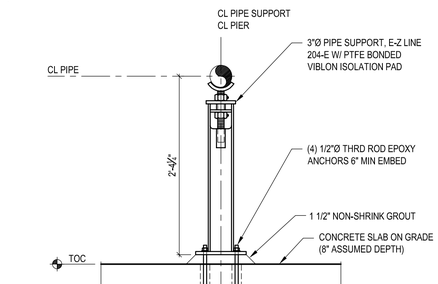
SCALE: NTS



NOTE:
1. ENSURE UNIFORM SUPPORT OF PIPE ON SLEEPER. PROVIDE ADDITIONAL PIPE PROTECTION OR ALLOW FOR MIN 1" GROUT BELOW PIPE PROTECTION AS NECESSARY TO ENSURE SUPPORT
2. LOCATE PER MECH

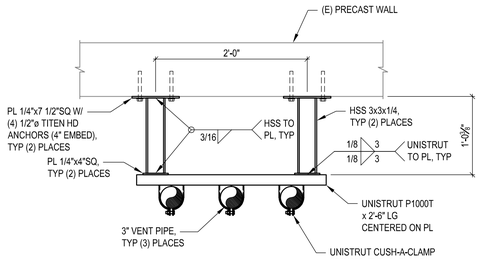
14 LARGE PIPE DIA FLAT CONCRETE SLEEPER

SCALE: NTS



15 TYPICAL 3" PIPE SUPPORT AT INTERIOR SLAB ON GRADE

SCALE: NTS



NOTES:
1. 3" VENT PIPE LOCATIONS PER MECHANICAL.
2. SPACE SUPPORTS AT 8'-0" OC, LAST SUPPORT AT TOP OF WALL TO BE 1'-6" BELOW TOP OF WALL.

16 TYPICAL 3" VENT PIPE SUPPORT AT EXTERIOR WALL

SCALE: NTS

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SHEET TITLE: DETAILS

PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS		
No.	Date	By
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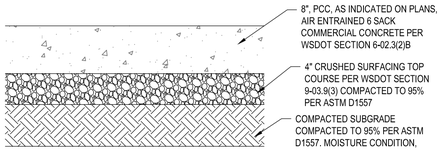
DATE	12/10/2021

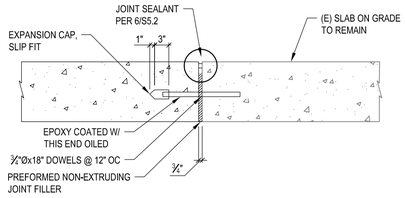
BID SET

SHEET: S5.1

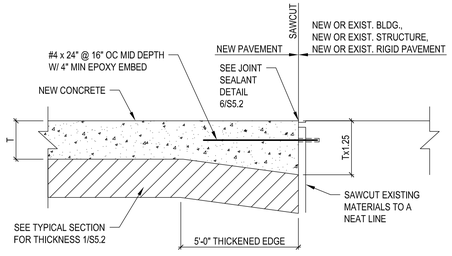


NOTES:
1. EXPANSION (ISOLATION) JOINTS SHALL USE A 3/8" PREMOLDED JOINT FILLER PER SEC 9-04.1(2). JOINTS SHALL EXTEND THROUGH THE FULL CROSS-SECTION OF THE CONCRETE & CURB GUTTER, WHERE APPLICABLE.
2. CONTRACTION (CONTROL) JOINTS SHALL BE SPACED NO FURTHER THAN 1.5 TIMES THE SHORTEST DIMENSION, OR 15'-0" ON CENTER MAX.
3. PROVIDE THICKENED EDGE AT TRANSITIONS TO OTHER PAVED STRUCTURES.
4. AT EXISTING TANK RISERS, RISERS TO BE CUT OFF 18" MINIMUM BELOW BOTTOM OF SLAB.

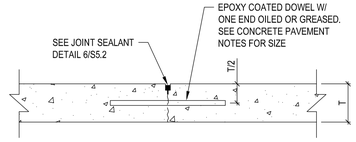
1 TYPICAL STANDARD DUTY CONCRETE PAVEMENT



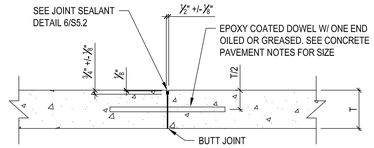
2 TYPICAL EXPANSION JOINT



3 TYPICAL THICKENED EDGE



4 CONTRACTION JOINTS

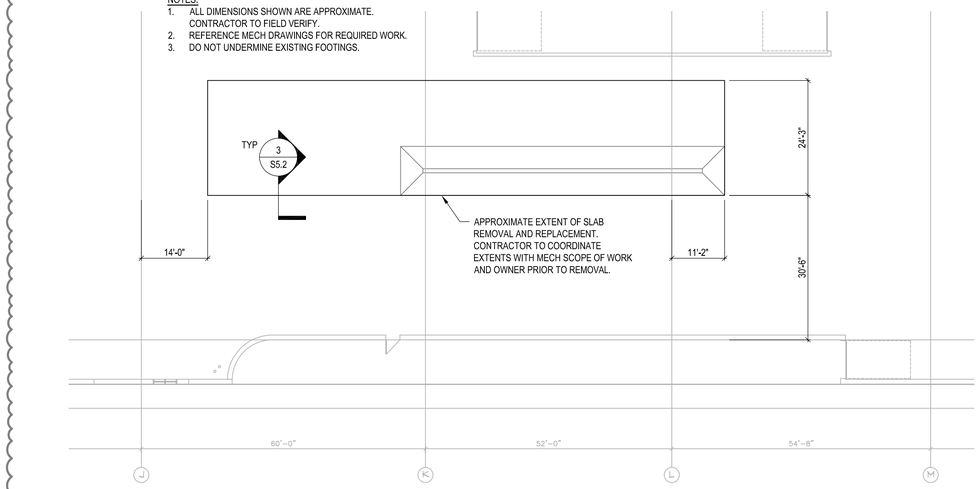


5 CONSTRUCTION JOINTS

NOTE:
1. ABOVE SEALANT RESERVOIR DIMENSIONS ARE APPROXIMATE. MANUFACTURE RECOMMENDED RESERVOIR DIMENSIONS SHALL BE USED.
2. CONTRACTOR CAN USE WSDOT APPROVED HOT POURED SEALANT INSTEAD OF SPECIFIED SILICONE JOINT SEALANT.

6 TYPICAL JOINT SEALANT

NOTES:
1. ALL DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY.
2. REFERENCE MECH DRAWINGS FOR REQUIRED WORK.
3. DO NOT UNDERMINE EXISTING FOOTINGS.



AREA F FIRST FLOOR SLAB REPLACEMENT

SCALE: 1/16" = 1'-0"

1

NOTE:
1. DETAILS ON THIS SHEET ARE FOR PORTIONS OF EXISTING CONCRETE SLAB REMOVED INSIDE THE EXISTING MAINTENANCE BUILDING IN ORDER TO DECOMMISSION EXISTING DIESEL TANKS.
2. SEE MECHANICAL DRAWINGS FOR LOCATION AND APPROXIMATE EXTENTS OF CONCRETE REMOVAL AND REPLACEMENT.

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DAVID L. PEDEN — STATE OF WASHINGTON — 27251 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

12/10/2021

STAMP

SHEET TITLE: DETAILS

PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By
1	12.10.2021	JDB

PROJ. NO. 2021-10628
DRAWN JDB
CHECKED KGU
DATE 12/10/2021

SHEET S5.2

GENERAL STRUCTURAL NOTES

BUILDING CODE:

1. ALL CONSTRUCTION, MATERIALS, AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THESE DRAWINGS, SPECIFICATIONS, AND THE CODES, RULES AND REGULATIONS OF THE INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION, AS ADOPTED AND AMENDED BY THE AUTHORITY HAVING JURISDICTION, HEREINAFTER REFERRED TO AS THE BUILDING CODE.

2. WHERE NOTED IN THE STRUCTURAL NOTES, CONSTRUCTION, MATERIALS, AND WORKMANSHIP SHALL ALSO CONFORM TO THE FOLLOWING STANDARDS. WHERE THESE STANDARDS CONFLICT WITH THE BUILDING CODE, THE CODE SHALL GOVERN.

GENERAL

ASCE7 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"
AMERICAN SOCIETY OF CIVIL ENGINEERS
ASCE/SEI 7 - 2016 EDITION

HOT ROLLED STEEL

AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"
AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ANSI/AISC360 - 2016 EDITION

AISC-303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISC303 - 2016 EDITION

WOOD

NDS "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION"
AMERICAN FOREST AND PAPER ASSOCIATION
ANSI/AF&PA NDS - 2018 EDITION

GENERAL NOTES:

1. THE CONTRACT DOCUMENTS REPRESENT THE FINISHED STRUCTURE, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.

2. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE DRAWINGS, SPECIFICATIONS, AND THE CODES, RULES AND REGULATIONS OF THE BUILDING CODE AS DEFINED IN THE "BUILDING CODE" SECTION.

3. CONSTRUCTION TOLERANCES SHALL CONFORM TO THE BUILDING STANDARDS SPECIFIED IN THE "BUILDING CODE" SECTION.

4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.

5. IF ANY ERRORS OR OMISSIONS APPEAR TO EXIST IN THESE DRAWINGS, SPECIFICATIONS, OR OTHER CONTRACT DOCUMENTS; THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER IN WRITING OF SUCH OMISSION OR ERROR BEFORE PROCEEDING WITH THE WORK.

6. A PRE CONSTRUCTION MEETING WITH BUDINGER & ASSOCIATES IS REQUIRED PRIOR TO START OF EXCAVATIONS ADJACENT TO THE PUBLIC ROW. THIS MEETING SHOULD BE SEPARATE FROM ANY DPD PRE-CONSTRUCTION MEETING. ATTENDEES SHALL INCLUDE, BUT LIMITED TO, REPRESENTATIVES OF THE OWNER, GENERAL CONTRACTOR, EXCAVATION AND SHORING SUBCONTRACTORS, PROJECT GEOTECHNICAL ENGINEER, PROJECT SURVEYORS, AND REVIEW AND INSPECTION PERSONNEL, AND STRUCTURAL ENGINEER.

7. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO ANY FABRICATION OR CONSTRUCTION FOR ALL STRUCTURAL ITEMS, INCLUDING STRUCTURAL STEEL, MISCELLANEOUS METAL, GROUTS, AND CONCRETES. PROPOSED DEMOLITION AND SHORING SEQUENCE SHALL ALSO BE SUBMITTED TO THE ENGINEER FOR REVIEW.

8. PILE PLACEMENT SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER-OF-RECORD. THE GEOTECHNICAL ENGINEER SHALL BE ON SITE DURING LAGGING EXCAVATION. INSPECTION BY AN APPROVED AND QUALIFIED TESTING AGENCY SHALL BE PERFORMED FOR STEEL FABRICATION, ERECTION, AND WELDING.

9. THE SHORING CONTRACTOR SHALL DETERMINE AND/OR VERIFY THE LOCATION OF ALL ADJACENT UNDERGROUND UTILITIES PRIOR TO DRILLING PILE HOLES, AND/OR CUTTING OR DIGGING IN STREETS OR ALLEYS. THE UTILITIES INFORMATION SHOWN ON THE DRAWINGS, IF ANY, MAY NOT BE COMPLETE OR CORRECT.

10. SEE GEOTECHNICAL TECHNICAL MEMO FOR SPECIFIC INFORMATION AND RECOMMENDATIONS FOR SHORING, SHORING MONITORING, EXCAVATION, LAGGING, AND DRAINAGE BEHIND LAGGING.

11. REFERENCE DOCUMENTS: GEOTECHNICAL TECHNICAL MEMO BY BUDINGER AND ASSOCIATES DATED AUGUST 19, 2021.

DESIGN CRITERIA:

SOLDIER PILE DESIGN HAS BEEN IN ACCORDANCE WITH BUDINGER AND ASSOCIATES TECHNICAL MEMO REFERENCED ABOVE.

DRILLED SOLDIER PILES:

1. CONCRETE PILE SHAFTS SHALL BE CONSTRUCTED SO THE CENTER AT THE TOP OF THE SHAFT IS WITHIN +/- 3 INCHES OF THE PLAN LOCATION. SHAFT PLUMBNESS MAY VARY UP TO 1 PERCENT OF THE PILE LENGTH.

2. THE STEEL SOLDIER PILES SHALL BE PLACED SO THAT THE STEEL SOLDIER PILE SHALL BE PLUMB WITHIN ONE PERCENT. THE TOP ELEVATION OF THE STEEL SOLDIER PILE SHALL BE WITHIN +/-1 INCH OF THE PLAN ELEVATION. SEE 1/SH.3 FOR CLARIFICATION ON + AND - DIRECTIONS.

3. SHAFTS SHALL BE EXCAVATED TO THE REQUIRED DEPTH AS SHOWN ON THE PLANS. THE EXCAVATION SHALL BE COMPLETED IN A CONTINUOUS OPERATION USING EQUIPMENT CAPABLE OF EXCAVATING THROUGH THE TYPE OF MATERIAL EXPECTED TO BE ENCOUNTERED.

4. SHORING AND SOIL EXCAVATION SHALL BE DONE SIMULTANEOUSLY. SEE SHORING/DEMOLITION SEQUENCING NOTES ON SH.1 FOR ADDITIONAL INFORMATION.

5. IF THE SHAFT EXCAVATION IS STOPPED WITH THE APPROVAL OF THE ENGINEER, THE SHAFT SHALL BE SECURED BY INSTALLATION OF A SAFETY COVER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE SAFETY OF THE SHAFT AND SURROUNDING SOIL AND THE STABILITY OF SIDE WALLS. A TEMPORARY CASING SHOULD BE USED TO ENSURE SUCH SAFETY AND STABILITY.

6. CONTRACTOR TO SELECT A METHOD OF TEMPORARY CASING TO PREVENT GROUND MOVEMENT AT ALL SOILS. CASING NOT REQUIRED AT BEDROCK.

7. THE CONTRACTOR SHALL USE APPROPRIATE MEANS (SUCH AS A CLEANOUT BUCKET), TO CLEAN THE BOTTOM OF THE EXCAVATION SUCH THAT NO MORE THAN 2 INCHES OF LOOSE OR DISTURBED MATERIAL IS PRESENT.

8. UNLESS SHOWN OTHERWISE ON THE PLANS, EXCAVATION OF SHAFTS SHALL NOT COMMENCE UNTIL A MINIMUM OF 12 HOURS AFTER THE CDF FOR THE ADJACENT SHAFTS HAS BEEN PLACED. TEMPORARY CASINGS FOR THE SHAFTS SHALL BE REMOVED. A MINIMUM 5 FOOT HEAD OF CONCRETE MUST BE MAINTAINED TO BALANCE THE SOIL AND WATER PRESSURE AT THE BOTTOM OF THE CASING DURING REMOVAL. THE CASING SHALL BE SMOOTH.

9. SHAFT CDF SHALL BE PLACED AS SHOWN ON THE PLANS. SHAFT CDF SHALL BE PLACED IN ONE CONTINUOUS OPERATION TO THE TOP OF THE SHAFT.

10. IF WATER IS NOT PRESENT, THE CDF SHALL BE DEPOSITED BY A METHOD WHICH PREVENTS AGGREGATE SEGREGATION.

11. IF WATER IS PRESENT, THE CDF SHALL BE DEPOSITED BY TREMIE PLACING METHODS.

WOOD:

1. LUMBER AND MANUFACTURED WOOD PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF THE BUILDING CODE AND NDS SPECIFICATIONS

2. FRAMING LUMBER SHALL BE GRADED AND MARKED IN CONFORMANCE WITH WCLB STANDARD GRADING AND DRESSING RULES FOR WEST COAST LUMBER NO. 16, LATEST EDITION. UNLESS OTHERWISE NOTED ON THE DRAWINGS.

3. LUMBER SHALL BE PRESSURE-TREATED DOUGLAS FIR-LARCH OR HEM-FIR WITH GRADES AS FOLLOWS:

   A. 4X LAGGING (ROUGH-SAWN):
   CONSTRUCTION GRADE LAGGING SHALL BE PRESSURE TREATED WITH WATERBORNE PRESERVATIVES IN ACCORDANCE WITH AWPB STANDARD UI, USE CATEGORY 4A.

STRUCTURAL STEEL, MISC. METAL:

1. STRUCTURAL STEEL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE BUILDING CODE AND AISC STANDARDS USING LOADS AS DEFINED IN AISC-360 SECTION B3-3 "DESIGN FOR STRENGTH USING LOAD & RESISTANCE FACTOR DESIGN (LRFD)".

2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE NOTED ON THE STRUCTURAL DRAWINGS:

   A. WIDE FLANGE SHAPES — ASTM A992, Fy = 50 KSI

   B. PLATES AND BARS — ASTM A36, Fy = 36 KSI

3. WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWS REQUIREMENTS. ALL WELDS SHALL BE PREQUALIFIED IN ACCORDANCE WITH AWS AND AISC STANDARDS. USE E70XX ELECTRODES, UNLESS NOTED OTHERWISE.

4. ALL WELDS SHALL BE PERFORMED BY WELDERS CERTIFIED IN THE JURISDICTION HAVING AUTHORITY OVER THIS PORTION OF THE WORK.

5. WELD LENGTHS CALLED FOR ON THE PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WELD SIZE SHALL BE AISC MINIMUM, UNLESS NOTED OTHERWISE.

CONCRETE / CONTROLLED DENSITY FILL (CDF):

1. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED, AND PLACED IN ACCORDANCE WITH IBC SECTION 1905 AND ACI 301. STRENGTHS AT 28 DAYS AND MIX CRITERIA SHALL BE AS FOLLOWS:

CONST TYPE	28 DAY STRENGTH (f'c)	MAXIMUM SLUMP	CEMENT CONTENT PER CUBIC YARD
PILES - CONCRETE @ BEDROCK	4000	3"	5 SACKS (MIN)
PILES - CDF @ SOIL	NA	NA	1 1/2 SACKS (MIN)

*MIXES SHALL BE PROPORTIONED SO AS NOT TO EXCEED THE MAXIMUM SLUMPS INDICATED.

2. THE MINIMUM AMOUNTS OF CEMENTITIOUS MATERIAL MAY BE CHANGED IF A CONCRETE PERFORMANCE MIX IS SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, FINE AND COARSE AGGREGATE, WATER AND ADMIXTURES, AS WELL AS THE WATER-CEMENT RATIO, SLUMP, CONCRETE YIELD AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH ACI 318-02, CHAPTER 5. THE USE OF A PERFORMANCE MIX REQUIRES BATCH PLANT INSPECTION, THE COST OF WHICH SHALL BE PAID BY THE GENERAL CONTRACTOR. REVIEW OF MIX SUBMITTALS BY THE ENGINEER OF RECORD INDICATES ONLY THAT INFORMATION PRESENTED CONFORMS GENERALLY TO CONTRACT DOCUMENTS. CONTRACTOR OR SUPPLIER MAINTAINS FULL RESPONSIBILITY FOR SPECIFIED PERFORMANCE.

3. TYPE I, II, OR III PORTLAND CEMENT CONFORMING TO ASTM C150/AASHTO M85 SHALL BE USED FOR CDF.

4. ALL CONCRETE WITH SURFACES EXPOSED TO STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR CONTENT CONFORMING TO IBC TABLE 1904.2.1.

5. ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C494/AASHTO M194, SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, AND SHALL BE APPROVED BY THE ENGINEER.

6. AGGREGATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C33/AASHTO M6 FOR FINE AGGREGATES AND AASHTO M80, CLASS B FOR COARSE AGGREGATES.

MONITORING:

SHORING SHALL BE MONITORED PER THE REQUIREMENTS OF THE GEOTECHNICAL SPECIAL INSPECTOR. THE MONITORING PLAN IS TO BE A JOINT EFFORT BY THE CONTRACTOR, OWNER, COFFMAN ENGINEERS, AND BUDINGER AND ASSOCIATES. THE SHORING MONITORING PROGRAM SHALL CONSIST OF THE FOLLOWING:

1. PRE-CONSTRUCTION SURVEY (VIDEO OR PHOTOGRAPHIC SURVEY) OF ADJACENT BUILDINGS AND RETAINING WALLS, TO BE SUBMITTED IMMEDIATELY TO STA. CONTRACTOR IS EXPECTED TO PARTICIPATE/ASSIST IN THE PRE-CONSTRUCTION SURVEY WITH THE OWNER, COFFMAN ENGINEERS, AND BUDINGER & ASSOCIATES, INC.

2. OPTICAL SURVEY OF MONITORING POINTS TO BE COMPLETED TWICE WEEKLY DURING CONSTRUCTION, AND TWICE PER MONTH (OR AS DETERMINED BY THE GEOTECHNICAL SPECIAL INSPECTOR) FOLLOWING COMPLETION OF THE EXCAVATION AND BEFORE THE COMPLETION OF THE VAULT STRUCTURES. MONITORING SHALL INCLUDE VERTICAL AND HORIZONTAL SURVEY MEASUREMENTS TO AN ACCURACY OF 0.02 FEET OR BETTER (0.01 FEET PREFERRED). BASELINE READINGS OF ALL MONITORING POINTS ARE TO BE TAKEN PRIOR TO THE START OF CONSTRUCTION. ALL RESULTS ARE TO BE SENT TO THE GEOTECHNICAL SPECIAL INSPECTOR WITHIN 24 HOURS. A LICENSED SURVEYOR HIRED BY THE OWNER (NOT THE CONTRACTOR) SHOULD PERFORM MONITORING AT LEAST ONCE PER WEEK. CONTRACTOR TO HELP COORDINATE AND FACILITATE THIS EFFORT.

3. OPTICAL SURVEY POINTS SHOULD BE ESTABLISHED AT THE TOP OF THE SHORING WALLS AROUND THE PERIMETER OF THE EXCAVATION. ESTABLISH MONITORING POINTS ON TOP OF EVERY OTHER PILE. MONITORING POINTS SHOULD BE ESTABLISHED ON EXISTING SETTLEMENT-SENSITIVE STRUCTURES LOCATED CLOSER TO THE EXCAVATION THAN A HORIZONTAL DISTANCE EQUAL TO THE EXCAVATION DEPTH, PRIOR TO DEWATERING, EXCAVATION, AND INSTALLATION OF SHORING SYSTEMS.

4. SURVEY FREQUENCY CAN BE DECREASED AFTER THE SHORING SYSTEM HAS BEEN INSTALLED AND EXCAVATION IS COMPLETE IF THE DATA INDICATES LITTLE OR NO ADDITIONAL MOVEMENT. SURVEYING MUST CONTINUE UNTIL THE PERMANENT STRUCTURE IS COMPLETE UP TO FINAL. THE SURVEY FREQUENCY WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AFTER REVIEW.

5. IMMEDIATELY AND DIRECTLY NOTIFY THE GEOTECHNICAL AND STRUCTURE ENGINEERS, IF 0.5 INCHES OF MOVEMENT OCCURS BETWEEN TWO CONSECUTIVE READINGS, AND WHEN TOTAL MOVEMENTS REACH 0.5 INCHES. AT THAT AMOUNT OF MOVEMENT, THE ENGINEERS AND DESIGNERS SHALL DETERMINE THE CAUSE OF DISPLACEMENT AND DEVELOP REMEDIAL MEASURES SUFFICIENT TO LIMIT TOTAL WALL MOVEMENTS TO 1 INCH. ALL EARTHWORK AND CONSTRUCTION ACTIVITIES MUST BE DIRECTED TOWARDS IMMEDIATE IMPLEMENTATION OF REMEDIAL MEASURES NECESSARY TO LIMIT TOTAL WALL MOVEMENTS TO WHAT HAS BEEN DEFINED AS ACCEPTABLE BY THE DESIGN TEAM (AS INDICATED ABOVE).

ADJACENT STRUCTURE MONITORING:
STRUCTURES ADJACENT TO THE SCOPE OF WORK AND THE SHORING WALL WITHIN THE WORK AREA SHALL BE MONITORED PER THE BUILDING AND SHORING MONITORING PLAN. THIS MONITORING PLAN IS TO BE CONDUCTED BY A THIRD PARTY HIRED BY THE OWNER. CONTRACTOR SHALL PROTECT BUILDING AND SHORING MONITORING DEVICES FROM DAMAGE AND MAINTAIN ACCESS TO MONITORING INSTRUMENTATION AT ALL TIMES. CONTRACTOR SHALL SCHEDULE AND PERFORM WORK IN A MANNER THAT WILL FACILITATE MONITORING AND VIBRATION MEASUREMENT. STRUCTURES TO BE MONITORED INCLUDE THE SHORING WALL, STA MAINTENANCE FACILITY, ADJACENT REI RETAINING WALL, AND THE REI BUILDING.

VIBRATION MONITORING:
VIBRATION MONITORING WILL BE PROVIDED BY A THIRD PARTY HIRED BY THE OWNER AS PART OF THE STRUCTURE MONITORING PLAN. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF ALL EXCAVATION AND DRILLING, NO BLASTING IS ALLOWED. WORK IS TO BE IN COMPLIANCE WITH THE CONSTRUCTION VIBRATION MONITORING THRESHOLDS LISTED BELOW. VIBRATION CRITERIA WILL BE MEASURED IN PEAK PARTICLE VELOCITY (PPV) IN INCHES/SECOND.

CONSTRUCTION VIBRATION MONITORING THRESHOLDS:

LOCATION	MAXIMUM PPV (IN/S) (CONTINUOUS VIBRATION SOURCES) (a)	MAXIMUM PPV (IN/S) IMPACT VIBRATION SOURCES (b)
STA BUILDING	0.5	0.5
REI RETAINING WALL	0.3	0.5
REI BUILDING	0.2	0.5

(a) CONTINUOUS VIBRATION CONSISTS OF EQUIPMENT SUCH AS BULL DOZERS, TRUCKS, JACKHAMMERS, COMPACTORS, ETC. THAT PRODUCE CONTINUOUS VIBRATION.
(b) IMPACT VIBRATION CONSISTS OF ACTIVITIES SUCH AS DROP CHISELS FOR ROCK BREAKING, PAVEMENT BREAKERS AND EQUIPMENT THAT PRODUCES A SHORT TERM VIBRATION. THE THRESHOLD VALUES ARE THE MAXIMUM ALLOWABLE, BUT MAY BE REVISED AS A HISTORY OF DATA IS DEVELOPED. STOP ALL CONSTRUCTION ACTIVITIES IF THRESHOLD VALUES ARE REACHED OR EXCEEDED AT ANY TIME DURING CONSTRUCTION UNTIL INTERPRETATION OF THE VIBRATION MONITORING DATA AND AN ASSESSMENT OF THE VIBRATION SOURCE(S) CAN BE MADE. VIBRATION MITIGATION MAY INCLUDE A REVIEW AND MODIFICATION OF CONSTRUCTION METHODS AND/OR EQUIPMENT AND EVALUATION OF CONSTRUCTION TRAFFIC AND ROUTES.

EXCAVATION, LAGGING, AND BACKFILL:

1. THE CONTRACTOR SHALL EXCAVATE THE WALL FACE AND INSTALL LAGGING IN SUCH A MANNER AS TO MAINTAIN A SAFE WORK PLACE AND AVOID EXCESSIVE SLOUGHING AND OVERBREAK. AS A MINIMUM, PRIOR TO PLACING THE SUBSEQUENT SET OF TIMBER LAGGING, DO NOT EXCAVATE MORE THAN 4 FEET BELOW THE CURRENT DEPT OF LAGGED WALL FACE. IF FACE STABILITY CONDITIONS REQUIRE, THIS HEIGHT MUST BE REDUCED. PROVIDE GROUTED VERTICAL ELEMENTS PER THE GEOTECHNICAL TECHNICAL MEMO.

2. LAGGING SHALL BE INSTALLED FROM THE TOP OF THE PILE PROCEEDING DOWNWARD. THE TIMBER LAGGING SHALL MAKE DIRECT CONTACT WITH THE SOIL. CDF MAY BE USED AS BACKFILL IN LOCALIZED AREAS IF VOIDS BEHIND THE LAGGING IS PRESENT.

3. ALL SLOPES SHALL BE PROTECTED AS REQUIRED BY THE GEOTECHNICAL ENGINEER.

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DAVID L. PEDEN — STATE OF WASHINGTON — 27251 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
12/10/2021
STAMP

SHEET TITLE: **SHORING GENERAL STRUCTURAL NOTES**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION:
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

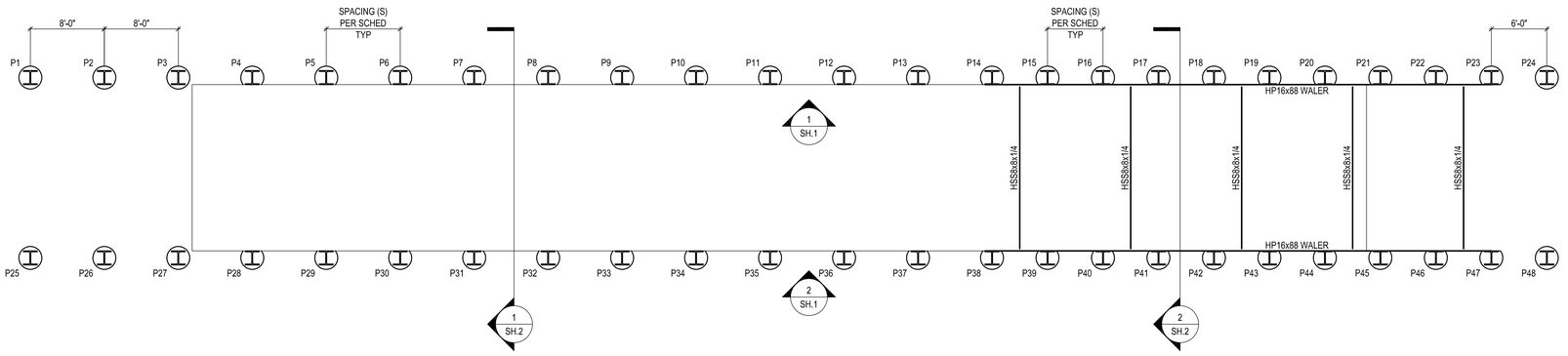
REVISIONS

No.	Date	By
1	12.10.2021	JDB

PROJ. NO. 2021-10628
DRAWN JDB
CHECKED KGU
DATE 12/10/2021

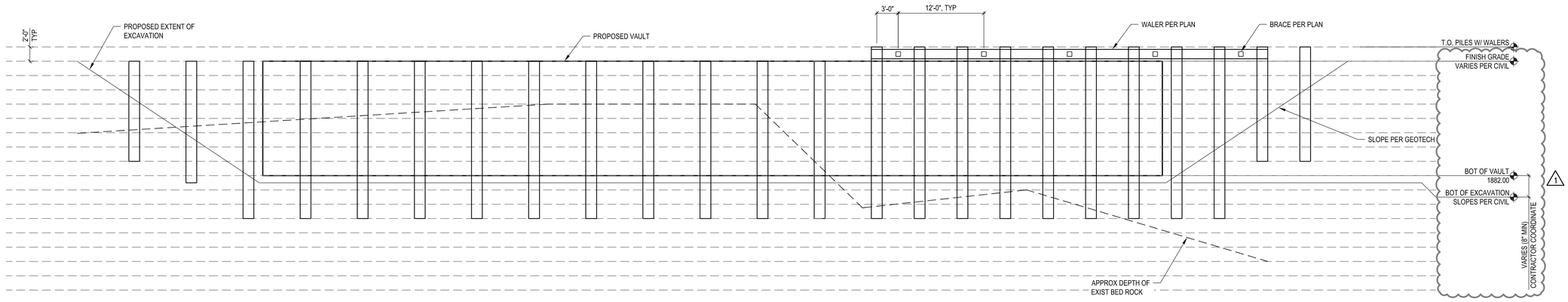
BID SET

SHEET: SH.0

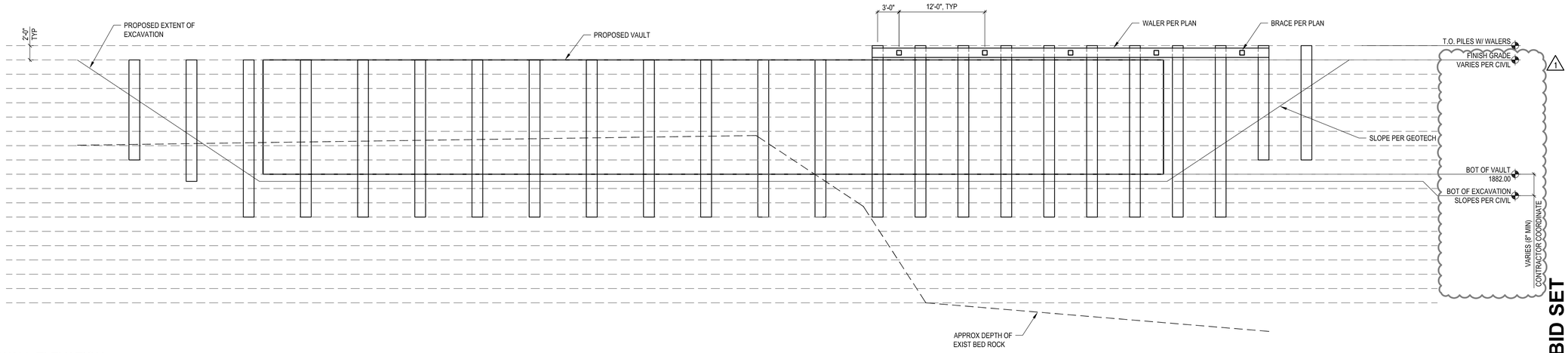


SHORING PLAN
SCALE: 1/8" = 1'-0"

NOTE:
1. Px INDICATES PILE ID.
2. DRILLED HOLES SHALL BE 30" DIAMETER.
3. FOR PILE SIZE AND DEPTH, REFER TO 1/SH.3.



1 NORTH WALL ELEVATION



2 SOUTH WALL ELEVATION

BID SET

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DAVID L. PEDEN — STATE OF WASHINGTON — 27251 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
12/10/2021
STAMP

SHEET TITLE: **SHORING PLAN AND ELEVATIONS**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

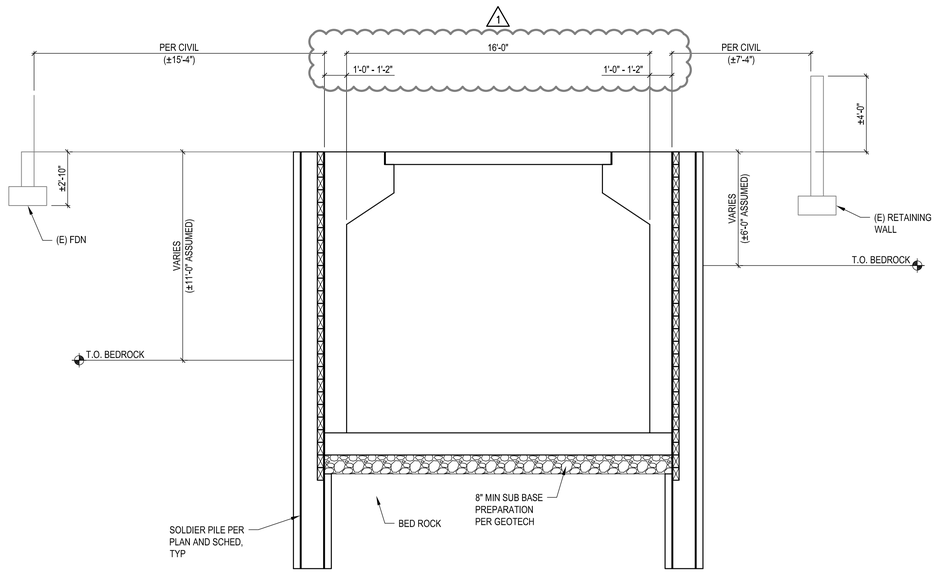
CLIENT INFORMATION

REVISIONS

No.	Date	By
1	12.10.2021	JDB

PROJ. NO. 2021-10628
DRAWN JDB
CHECKED KGU
DATE 12/10/2021

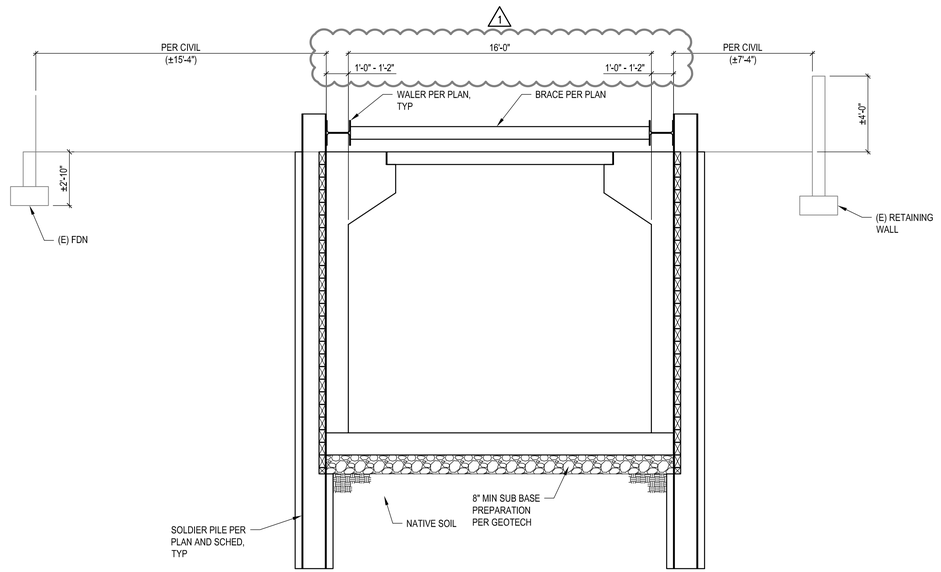
SHEET SH.1



NOTE:
1. SPACE BETWEEN VAULT WALLS AND SHORING WALL TO INCORPORATE WATER PROOFING, DEFLECTION OF PILES, ETC NOT SHOWN. SEE DETAILS ON SH.3 FOR CLARIFICATION.
2. SLOPE BED ROCK PER CIVIL TOWARDS THE EAST FOR DRAINAGE. CONTRACTOR COORDINATE.

1 TYPICAL SECTION AT SHALLOW BEDROCK

SCALE: 1/4"=1'-0"



NOTE:
1. SPACE BETWEEN VAULT WALLS AND SHORING WALL TO INCORPORATE WATER PROOFING, DEFLECTION OF PILES, ETC NOT SHOWN. SEE DETAILS ON SH.3 FOR CLARIFICATION.

2 TYPICAL SECTION AT DEEP BEDROCK

SCALE: 1/4"=1'-0"

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DAVID L. PEDEN
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STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
12/10/2021
STAMP

SHEET TITLE
SHORING AND EXCAVATION SECTIONS

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

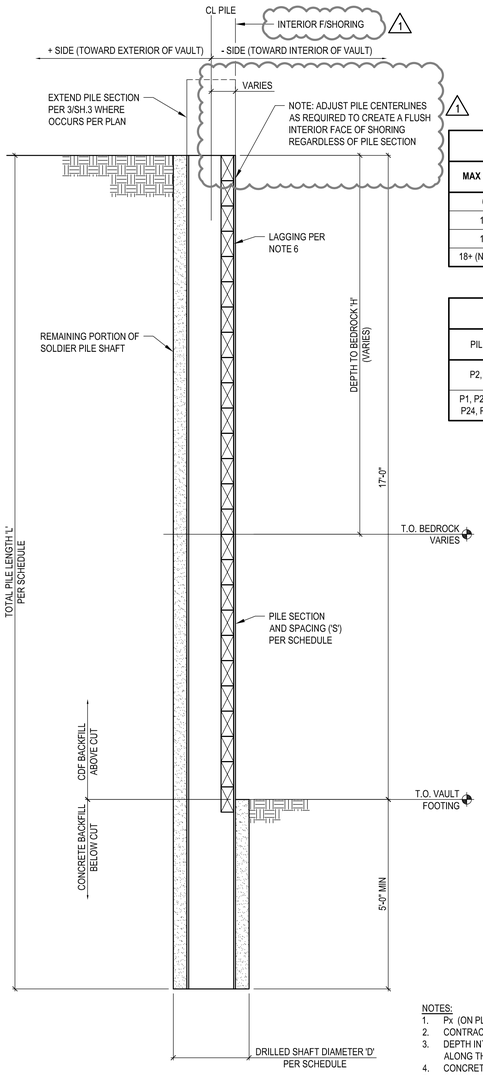
REVISIONS

No.	Date	By
1	12.10.2021	JDB

BID SET

PROJ. NO.	2021-10628
DRAWN	JDB
CHECKED	KGU
DATE	12/10/2021

SHEET
SH.2



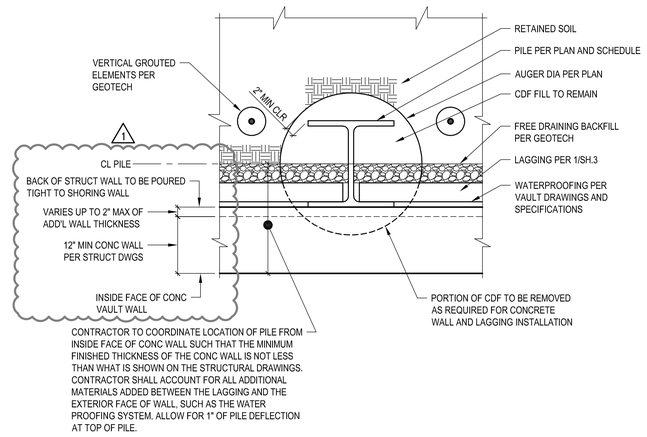
TYPICAL PILE SCHEDULE - AT VAULTS			
MAX H (FT)	**SECTION**	**MAX S (FT)**	**PILE LENGTH 'L' (FT)**
6	HP16x88	8	22
12	HP18x135	8	22
18	HP18x157	6	22
18+ (NOTE 4)	HP16x88	6	22

PILE PARAMETERS - AT RAMPS		
PILE ID	**SECTION**	**PILE LENGTH 'L' (FT)**
P2, P26	HP16x88	5'-0" INTO BEDROCK (17'-0" ASSUMED)
P1, P25, P23, P24, P47, 48	HP18x135	6'-0" MIN EMBED (14'-0" ASSUMED)

NOTES:
1. Px (ON PLAN) INDICATES PILE ID.
2. CONTRACTOR TO VERIFY ASSUMED PILE LENGTHS.
3. DEPTH INTO BEDROCK BEGINS AT THE LOWEST POINT OF THE SHAFT ALONG THE SLOPE.
4. CONCRETE VAULT NOT SHOWN FOR CLARITY.
5. CHIP OUT SHAFT BACKFILL TO PLACE LAGGING AS REQUIRED.
6. USE DF-L CONSTRUCTION GRADE 4x12 (NOMINAL) LAGGING.
7. PROVIDE WALER AND STRUT BRACE AT TOP OF WALL PER PLAN AND DETAIL 3/SH.3. LOCATION PER PLAN.

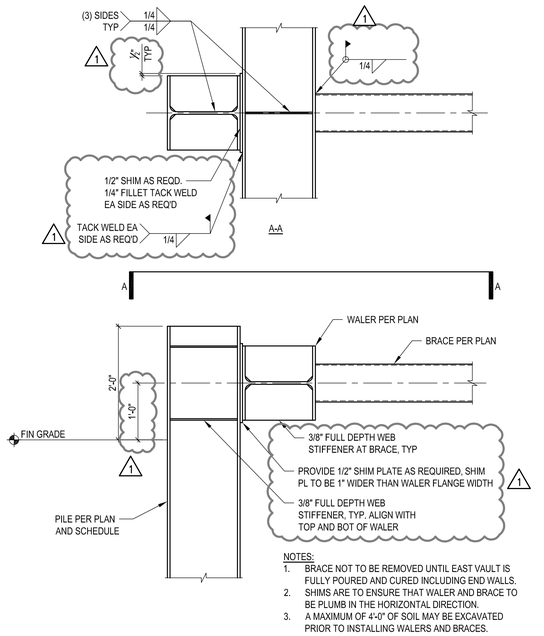
1 TYPICAL SOLDIER PILE SECTION

SCALE: NTS



2 TYPICAL SOLDIER PILE - PLAN VIEW

SCALE: NTS



NOTES:
1. BRACE NOT TO BE REMOVED UNTIL EAST VAULT IS FULLY POURED AND CURED INCLUDING END WALLS.
2. SHIMS ARE TO ENSURE THAT WALER AND BRACE TO BE PLUMB IN THE HORIZONTAL DIRECTION.
3. A MAXIMUM OF 4'-0" OF SOIL MAY BE EXCAVATED PRIOR TO INSTALLING WALERS AND BRACES.

3 TYPICAL BRACE DETAIL

SCALE: NTS

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DAVID L PEDEN — STATE OF WASHINGTON — 27251 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

12/10/2021

STAMP

SHEET TITLE: **DETAILS**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

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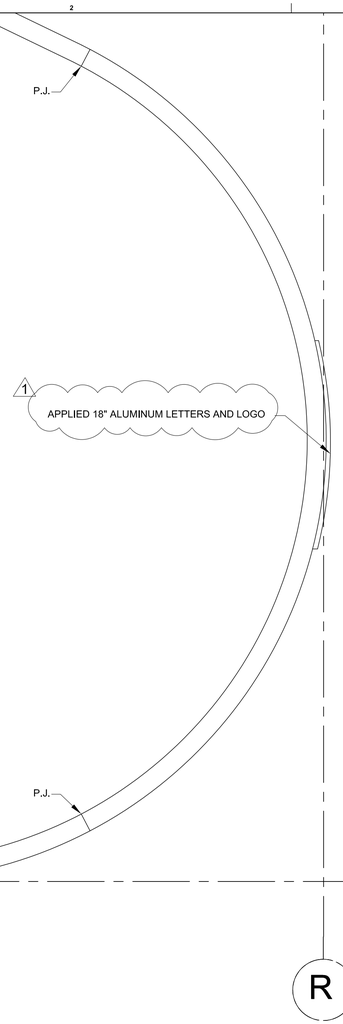
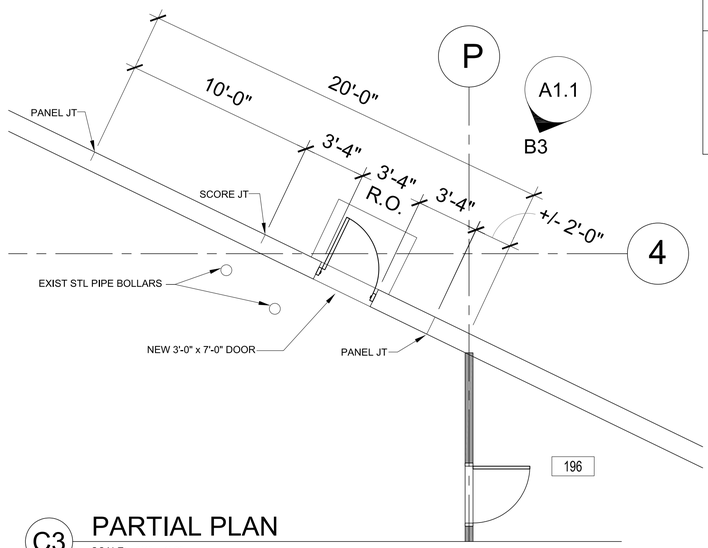
BID SET

SH.3

SHEET





C3 PARTIAL PLAN

SCALE: 1/4" = 1'-0"

B2 PARTIAL PLAN AT BLDG SIGNAGE

SCALE: 1/4" = 1'-0"

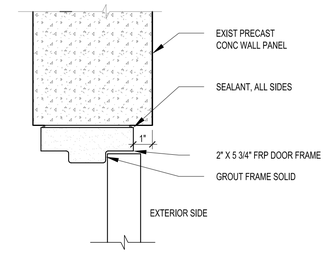
NORTH

B3 PARTIAL NORTH ELEVATION

SCALE: 1/4" = 1'-0"

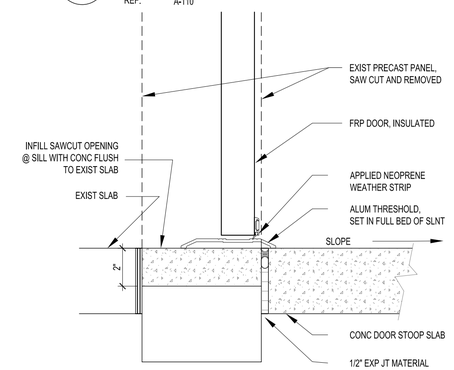
GENERAL NOTES

1. DIMENSIONS ARE TO THE F.O. STUD, GRID LINES, FACE OF CONCRETE, AND CENTERLINE OF COLUMNS UNO. FIELD VERIFY
2. CLR DIMENSIONS INDICATE CLEAR DIMENSIONS FROM FACE OF WALL FINISH
3. SEE SPECIFICATIONS FOR FURTHER INFORMATION.



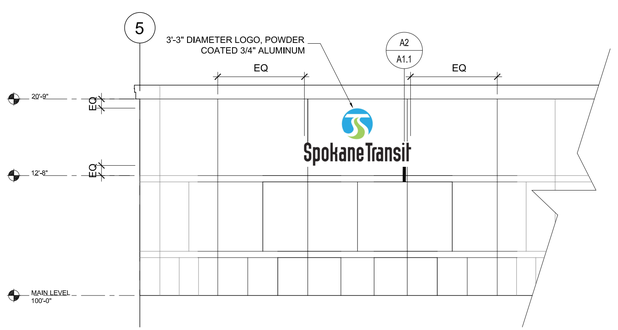
C5 FRP DOOR JAMB (HEAD SIM)

SCALE: 3" = 1'-0"
REF: A-110



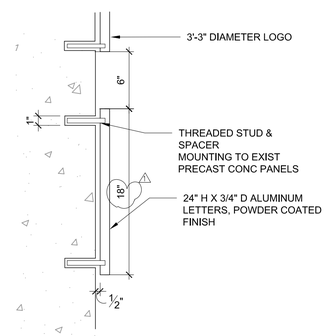
B5 FRP DOOR SILL

SCALE: 3" = 1'-0"
REF: A-110



A1 PARTIAL EAST ELEVATION

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



A2 METAL LETTER SIGNAGE MOUNTING

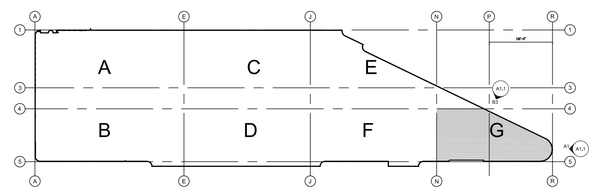
SCALE: 1 1/2" = 1'-0"
REF:

A3 SIGN TYPE 1

SCALE: 1 1/2" = 1'-0"
REF: A1 / A-110

Spokane Transit

DESCRIPTION: 3 - DIMENSIONAL SIGN CONSISTING OF INDIVIDUAL POWDER COATED ALUMINUM LETTERS.
SIZE: EACH LETTER IS 18" H X 3/4" D
LETTERING: FONT: PER OWNER - UPPER AND LOWER CASE
LOCATION: REFER TO PARTIAL PLAN AND PARTIAL BUILDING ELEVATION. CENTER ON WALL AS SHOWN.
MOUNTING: ATTACHED W/ TREADED STUD & SPACER, 1/2" FROM WALL SURFACE.



A5 KEYPLAN

SCALE: NOT TO SCALE

NORTH

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alscarchitects.com

S947 REGISTERED ARCHITECT
RUSTIN L. HALL
STATE OF WASHINGTON

STAMP

SHEET TITLE: AREA FLOOR PLAN

PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

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CHECKED	DLE
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SHEET: A1.1

PIPING SYMBOLS

- VALVE
- GATE VALVE
- NEEDLE VALVE
- BALL VALVE
- GLOBE VALVE
- PLUG VALVE
- STOP COCK
- OS & Y GATE VALVE W/ TAMPER SWITCH
- AUTOMATIC CONTROL VALVE (PNEUMATIC)
- THREE WAY AUTO. CONTROL VALVE (PNEUMATIC)
- MOTORIZED (M) OR SOLENOID (S) VALVE
- 3 WAY MOTORIZED OR SOLENOID VALVE
- BUTTERFLY VALVE
- FUSIBLE OIL SAFETY VALVE
- PRESSURE REDUCING VALVE
- PRESSURE REGULATOR
- SPECIAL VALVE
- STRAINER WITH BLOW DOWN
- "Y" TYPE STRAINER
- UNION
- FLOW SWITCH
- PRESSURE SWITCH
- CHECK VALVE
- SPRING CHECK VALVE
- BALANCE VALVE (SEE TABLE BELOW)
- BALANCE VALVE (AUTOMATIC)
- FUEL ANTI-SIPHON VALVE
- PIPE SLOPE DIRECTION DOWN
- PRESSURE SAFETY VALVE
- ANGLE VALVE
- PRESSURE/VENT RELIEF VALVE

- HOSE QUICK DISCONNECT
- END CAP
- PIPE DOWN
- PIPE UP
- DOWN IN PIPE
- REDUCER, CONCENTRIC
- REDUCER, ECCENTRIC
- FLOW DIRECTION
- THERMOWELL
- PRESSURE GAUGE W/ COCK
- PRESSURE GAUGE W/ COCK & SIPHON
- AIR VENT (C – COIN, M – MANUAL, A – AUTOMATIC, H – HIGH VOLUME)
- BASKET STRAINER
- EXPANSION LOOP
- EXPANSION JOINT
- EXPANSION GUIDE
- FLEXIBLE FITTING
- FLEX COUPLING
- ANCHOR
- LINE CONNECTING TO EXISTING
- PUMP (ARROWHEAD INDICATES PUMP DIRECTION)
- FLOW METER
- CAMLOCK COUPLING
- FLOAT FILL LIMITING VALVE

- BLIND FLANGE
- DOUBLE FLANGE
- CP TEST STATION
- VENT, V
- NATURAL GAS
- MEDIUM PRESSURE GAS
- DIESEL FUEL
- SYSTEM BOUNDARY LINE
- ELECTRICAL INSTRUMENT LINE
- ELECTRICAL PNEUMATIC LINE
- THERMAL RELIEF, TR

INSTRUMENTATION LEGEND

- CONTROL SYSTEM INTERLOCK
- INSTRUMENT TYPE–LOCAL
- INSTRUMENT TAG
- INSTRUMENT TYPE–PANEL
- INSTRUMENT TAG
- PRIMARY PLC

GENERAL

NOTES:

1 SPECIFIC NOTE FOR THIS SHEET ONLY.

DRAWING LINETYPE:

———— NEW (BOLD LINE)

CONSTRUCTION TAG:

XX–X – UNDERLINED DESIGNATOR HAS SCHEDULED VALUES, SEE MECHANICAL SCHEDULES DRAWINGS.

– CONNECT TO EXISTING

ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE
AFF	ABOVE FINISH FLOOR
AG	ABOVE GROUND
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
API	AMERICAN PETROLEUM INSTITUTE
AST	ABOVE GROUND STORAGE TANK
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ATM	ATMOSPHERE
AWS	AMERICAN WELDING SOCIETY
B.D.	BOLT DOWN
BFS	BULK FUEL STORAGE
BG	BELOW GROUND
BTM	BOTTOM
BTU	BRITISH THERMAL UNITS
BV	BALANCING VALVE
CFM	CUBIC FEET PER MINUTE
CFH	CUBIC FEET PER HOUR
℄	CENTER LINE
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CPEP	CORRUGATED POLYETHYLENE PIPE
DFT	DRY FILM THICKNESS
DIA	DIAMETER
DN	DOWN
DPS	DIFFERENTIAL PRESSURE SWITCH
DWG	DRAWING
(E)	EXISTING
EL	ELBOW
EPA	ENVIRONMENTAL PROTECTION AGENCY
EPDM	ETHYLENE–PROPYLENE–DIENE MONOMER
ESD	EMERGENCY SHUT DOWN
F	FAHRENHEIT
FF	FINISH FLOOR
FC	FAILED CLOSED
FG	FINISH GRADE
FLG	FLANGE
FO	FUEL OIL
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY OR FUSIBLE OIL SAFETY
FPT	FEMALE PIPE THREADED
FQT	FLOW METER
FT	FEET
G	LOW PRESSURE GAS
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GB	GRADE BREAK
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HL	HIGH LIMIT
HP	HORSEPOWER
HR	HOUR
UHMW	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE
IAW	IN ACCORDANCE WITH
L	ANGLE IRON
LAH	LEVEL ALARM HIGH
LB	POUND
LF	LINEAR FEET
LG	LEVEL GAUGE
LI	LEVEL INDICATOR
LP	LIQUID PROPANE
LPS	LIQUID PROPANE SUPPLY
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITH LOW LOW
MAX	MAXIMUM
MBH	THOUSANDS BTU PER HOUR
MECH	MECHANICAL
MFR	MANUFACTURER
MIL	0.001 INCH
MIN	MINIMUM OR MINUTES
MOV	MOTOR OPERATED VALVE
N_2	NITROGEN
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NFS	NON–FROST SUSCEPTIBLE
N.I.C.	NOT IN CONTRACT
NO	NORMALLY OPEN
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
NSFC	NOT SHOWN FOR CLARITY
OAT	OUTSIDE AIR TEMPERATURE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OS	OPERATOR SELECT
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OZ	OUNCE
PCC	PORTLAND CEMENTUOUS CONCRETE
PCV	PRESSURE CONTROL VALVE
PH	PHASE
PI	PRESSURE INDICATOR
PL	STEEL PLATE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLCS	PLACES
POL	PETROLEUM OIL LUBRICANTS
PRV	PRESSURE REGULATING VALVE
PSF	POUND PER SQUARE FOOT
PSI	POUND PER SQUARE INCH
PSIG	POUND PER SQUARE INCH GAUGE
PSL	PRESSURE SWITCH LOW
PSV	PRESSURE SAFTEY VALVE
PT	PRESSURE/TEMPERATURE
RED	REDUCER
REQD	REQUIRED
RF	RAISED FACE
R.O.	ROUGH OPENING
RPM	REVOLUTION PER MINUTE
SIM	SIMILAR
SCH	SCHEDULE
SDY	SHUT–DOWN SOLENOID
S.O.	SLIP–ON FLANGE
SS	STAINLESS STEEL
SSPC	STEEL STRUCTURES PAINTING COUNCIL
STD	STANDARD
STL	STEEL
SY	SQUARE YARD
T	TEMPERATURE
TAB	TEST, ADJUST & BALANCE
TDH	TOTAL DYNAMIC HEAD
T.F.	TREADED FEMALE BUNG
THD	TREADED
TI	TEMPERATURE INDICATOR
TOD	TOP OF DIKE
T.O.L.	THREAD–O–LET
TS	TUBE STEEL
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
US	UNDERSLAB
UV	ULTRAVIOLET
V	VENT OR VOLTS
VAC	VOLTAGE ALTERNATING CURRENT
VTR	VENT THRU ROOF
W/	WITH
W.C.	WATER COLUMN
W.O.L.	WELD–O–LET
WP	WORKING PRESSURE
XI	DIGITAL INPUT
XS	DIGITAL OUTPUT
XSO	INDICATOR LAMP
ZSC	POSITION SWITCH CLOSED
ZSO	POSITION SWITCH OPEN
ø	DIAMETER

ALL SYMBOLS AND ABBREVIATIONS DO NOT NECESSARILY APPEAR ON DRAWINGS

GENERAL NOTES:

1. SEE SPECIFICATION SECTION 335613 – ABOVE GROUND STORAGE TANKS FOR PERFORMANCE SPECIFICATION AND SYSTEM REQUIREMENTS.
2. FUEL DISPENSING IS DESIGNED FOR DIESEL FUEL.
3. THE CONTRACTOR SHALL COMPLETE ALL REQUIREMENTS STATED IN THE CONTRACT.
4. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES. THE CONTRACTOR SHALL NOT ASSUME THAT BECAUSE THERE ARE NO UTILITIES SHOWN, THAT NONE EXIST.
5. NOT USED.
6. THE CONTRACTOR SHALL CLEAN UP MATERIAL SPILLS AT THE END OF EACH WORK DAY AND/OR WHENEVER THEY OCCUR.
7. THE CONSTRUCTION STAGING AND MATERIAL STOCKPILING AREAS WILL BE DETERMINED BY THE CONSTRUCTION MANAGER. THE CONTRACTOR SHALL STAGE THEIR EQUIPMENT ONLY AT DESIGNATED LOCATIONS AND SHALL COMPLY WITH ALL ASSOCIATED REQUIREMENTS.
8. THE CONTRACTOR IS RESPONSIBLE FOR APPLYING AND OBTAINING THE GRADING AND DEPARTMENT OF HEALTH PERMITS, IF REQUIRED, IN ACCORDANCE WITH THE APPLICABLE PROVISIONS.
9. THE CONTRACTOR SHALL PROVIDE ALL WORK REQUIRED FOR A FULLY FUNCTIONAL AND COMPLETE PROJECT, REGARDLESS IF ALL ITEMS ARE NOT SPECIFICALLY CALLED OUT IN THE DRAWINGS OR SPECIFICATIONS.
10. ZINC AND GALVANIZING SHALL NOT BE USED ON COMPONENTS IN CONTACT WITH DIESEL FUEL.
11. CONTRACTOR SHALL COORDINATE FABRICATION AND DELIVERY OF THE SKID WITH SITE SPECIFIC ITEMS. CONTRACTOR SHALL COORDINATE FUELING SYSTEM WITH COMPLETE DESIGN DOCUMENTS FOR THE STA FACILITY. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE TANK SITE, VAULT, AND BOLLARD LOCATIONS WITH SITE PLAN.
12. DRAWINGS ARE FOR DESCRIPTION OF THE PERFORMANCE AND GENERAL ARRANGEMENT OF EQUIPMENT. CONTRACTOR SHALL SUPPLY ALL SYSTEMS AND EQUIPMENT FOR A COMPLETE AND OPERATIONAL SYSTEM, SEE SPECIFICATIONS.
13. ALL MANUFACTURER OR MODEL CALLOUTS ARE BASIS OF DESIGN. CONTRACTOR SHALL PROVIDE EQUAL OR SUPERIOR PRODUCT COMPATIBLE WITH CONNECTIONS AND AND SPACE ALLOWED.

DISPENSING PUMP SCHEDULE

LABEL	SERVICE	VOLT/PHASE/Hz/FLA	STYLE	GPM	HEAD	MODEL #	MFGR	LOCATION	COMMENTS
DP–01	DIESEL FUEL	208/1/60/20	SUBMERSIBLE	55	115FT	ISTAP	FE PETRO	VAULT 1	DISPENSING PUMP FT–01, VARIABLE SPEED, W/ 40PSI RELIEF/CHECK VALVE
DP–02	DIESEL FUEL	208/1/60/20	SUBMERSIBLE	55	115FT	ISTAP	FE PETRO	VAULT 2	DISPENSING PUMP FT–02, VARIABLE SPEED, W/ 40PSI RELIEF/CHECK VALVE
DP–03	DIESEL FUEL	208/1/60/20	SUBMERSIBLE	55	115FT	ISTAP	FE PETRO	VAULT 3	DISPENSING PUMP FT–03, VARIABLE SPEED, W/ 40PSI RELIEF/CHECK VALVE

TANK SCHEDULE

LABEL	OWNER	TYPE	FUEL	CAPACITY, GALLONS FUEL OIL		DIAM.	LENGTH	COMMENTS
				GROSS	NET	OD	OUTSIDE	
FT–01	STA	DOUBLE WALL – UL142	DIESEL FUEL	20,000	17,000	10'–0"	34'–8"	TANK TO BE SET IN A VAULT
FT–02	STA	DOUBLE WALL – UL142	DIESEL FUEL	20,000	17,000	10'–0"	34'–8"	TANK TO BE SET IN A VAULT
FT–03	STA	DOUBLE WALL – UL142	DIESEL FUEL	20,000	17,000	10'–0"	34'–8"	TANK TO BE SET IN A VAULT

FAN SCHEDULE

LABEL	SERVICE	STYLE	CFM	ESP (IN WC)	MFGR MODEL #	NOISE CRITERIA (NC)	ELECTRICAL (HP/V/PH)	LOCATION	COMMENTS
EF–01	VAULT VENTILATION 3 AC/HR	ROOF UPBLAST CENTRIFUGAL	500	0.25	GREENHECK CUE–100–C	40	0.125/115/1	VAULT 1	FAN TO BE CONTROLLED WITH OAT THERMOSTAT AND SHALL SHUT DOWN IF TEMPERATURE IS BELOW 40°F. PROVIDE WITH HAND/OFF/AUTO SWITCH, THERMOSTAT AND BACKDRAFT DAMPER. NOISE CRITERIA NC40
EF–02	VAULT VENTILATION 3 AC/HR	ROOF UPBLAST CENTRIFUGAL	500	0.25	GREENHECK CUE–100–C	40	0.125/115/1	VAULT 2	FAN TO BE CONTROLLED WITH OAT THERMOSTAT AND SHALL SHUT DOWN IF TEMPERATURE IS BELOW 40°F. PROVIDE WITH HAND/OFF/AUTO SWITCH, THERMOSTAT AND BACKDRAFT DAMPER. NOISE CRITERIA NC40
EF–03	VAULT VENTILATION 3 AC/HR	ROOF UPBLAST CENTRIFUGAL	500	0.25	GREENHECK CUE–100–C	40	0.125/115/1	VAULT 3	FAN TO BE CONTROLLED WITH OAT THERMOSTAT AND SHALL SHUT DOWN IF TEMPERATURE IS BELOW 40°F. PROVIDE WITH HAND/OFF/AUTO SWITCH, THERMOSTAT AND BACKDRAFT DAMPER. NOISE CRITERIA NC40

1

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MARK JAMES SIPE — STATE OF WASHINGTON — 32601 — REGISTERED PROFESSIONAL ENGINEER

STAMP 12/10/2021

SHEET TITLE: NOTES, LEGENDS, & SCHEDULES

PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By
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BID SET

PROJ. NO. 2021-10628
DRAWN JLJ
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DATE 12/10/2021

SHEET M0.1

SPECIFICATIONS:

GENERAL:

SEE SPECIFICATION SECTIONS 230550 – IDENTIFICATION FOR PIPING AND EQUIPMENT, SECTION 231113 – FACILITY FUEL PIPING AND EQUIPMENT, 231327 – FACILITY ABOVEGROUND FUEL STORAGE TANKS, SECTION 233116 – NONMETAL DUCTS, FOR ADDITIONAL REQUIREMENTS.

SUBMITTALS:

1. SUBMIT MATERIALS FOR APPROVAL CONFORMING THIS SPECIFICATION. WHERE MANUFACTURERS ARE LISTED COMPARABLE PRODUCT SUBMITTALS CAN ACCOMPANY BASIS OF DESIGN PRODUCT SUBMITTAL.

2. WHERE INDICATED ON PLANS THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR FABRICATIONS AND SPECIALTY ITEMS. THE CONTRACTOR SHALL REVIEW AND APPROVE ALL SHOP DRAWINGS PRIOR TO ENGINEERING REVIEW.

MATERIALS:

1. FURNISH ALL EQUIPMENT, TOOLS, ETC. REQUIRED FOR THE INSTALLATION OF THE COMPLETE AND OPERATING SYSTEM. ALL EQUIPMENT AND MATERIALS SHALL BE NEW UNLESS OTHERWISE NOTED.

PIPING QUALITY CONTROL:

1. CONFORMANCE TO DESIGN INTENT WILL BE EVALUATED BY THE ENGINEER OF RECORD. THIS WILL INCLUDE INSPECTION OF RECORDS AND OBSERVATION OF INSTALLATION. QUESTIONS REGARDING DESIGN INTENT SHALL BE ADDRESSED TO THE ENGINEER OF RECORD.

2. EXAMINATION OF WELDED PIPE JOINTS AND FLANGE BOLTING SHALL BE PERFORMED BY A CERTIFIED WELDING INSPECTOR. PREPARE PIPING FOR EXAMINATION AND NOTIFY ENGINEER WHEN PIPING IS READY FOR EXAMINATION. DO NOT COVER OR INSULATE WELDED JOINTS UNTIL ACCEPTED BY THE OWNER. ALL WELDED JOINTS SHALL HAVE VISUAL EXAMINATION BY CERTIFIED WELDING INSPECTOR.

2. CONTRACTOR SHALL MAINTAIN RECORDS ON SITE FOR INSPECTION. THESE SHALL INCLUDE QUALIFIED WELDING PROCEDURES, WELDER CERTIFICATIONS, AND EQUIPMENT QUALIFICATIONS. RECORDS SHALL ALSO BE MAINTAINED AT SITE OF SHOP FABRICATION IF LOCATION IS NOT AT OWNER'S SITE. COMPLY WITH INSPECTOR REQUESTS FOR RECORDS IMMEDIATELY.

3. ASSEMBLE FLANGES USING GASKET MANUFACTURER'S INSTRUCTIONS. USE TORQUE WRENCH AND RECORD TORQUE FOR EACH PASS. BOLTING SHALL BE OBSERVED AND RECORDED BY INSPECTOR. TIGHTENING PATTERN MAY FOLLOW THE GASKET MANUFACTURER'S INSTRUCTIONS OR ASME PCC–1.

4. SYSTEM TESTING IS THE CONTRACTOR'S RESPONSIBILITY. TESTING SHALL BE DONE PER ASME B31.3 REVIEW TEST METHOD WITH ENGINEER. SCHEDULE TESTING FOR WITNESS BY OWNER'S REPRESENTATIVE OR INSPECTOR. HYDROSTATIC TESTING WILL BE AVOIDED AT THIS SITE UNLESS APPROVED BY ENGINEER.

5. A PRELIMINARY PNEUMATIC TEST NOT TO EXCEED 25 PSIG SHALL BE USED TO IDENTIFY MAJOR LEAKS PRIOR TO SITE HYDRO–TEST.

6. USE CLEAN FRESH WATER WITH CORROSION INHIBITOR WHEN HYDROTESTING. FLUSH AND DRY PIPING AFTER HYDROTEST TO PREVENT FUEL CONTAMINATION. SUBMIT ADDITIVES, DETERGENTS, AND CLEANING METHOD FOR APPROVAL BEFORE HYDROTEST.

7. SHOP FABRICATED PIPING SPOOLS SHALL BE HYDROSTATICALLY PRESSURE TESTED TO 225 PSIG PRIOR TO SENDING TO THE FIELD, AS REFERENCED IN ASME B31.3. MAINTAIN TEST RECORDS AT THE FABRICATION SITE AND THE OWNER'S SITE. USE CORROSION INHIBITOR WHEN HYDROTESTING. FLUSH AND DRY PIPING AFTER HYDROTEST TO PREVENT FUEL CONTAMINATION.

8. DO NOT COVER PIPING WITH FIRE RESISTIVE WRAP UNTIL APPROVED BY OWNER AND AFTER HYDROTEST.

PIPING DESIGN CONDITIONS:

DIESEL FUEL

PIPING CODE:	ASME B31.3
DESIGN PRESSURE:	150 PSIG
DESIGN TEMPERATURE:	115 °F
OPERATING PRESSURE:	40 PSIG
OPERATING TEMP:	70 °F
AMB. INSTALL TEMPERATURE:	50 °F MINIMUM
PIPE EXP./CONTR:	+0.47" / –0.14" (PER 100 FT)

PIPE:

1. DIESEL FUEL: ASTM A106 GR B SEAMLESS, OR A53 GR B, SEAMLESS OR ERW. UNLESS NOTED OTHERWISE PIPING LESS THAN 2" NPS SHALL BE SCH. 80, PIPING 2" TO 10" NPS SHALL BE SCH. 40, PIPING 12" AND LARGER SHALL BE STD. WEIGHT.

2. COMPRESSED AIR PIPING: A53 GR B, SEAMLESS OR ERW. UNLESS NOTED OTHERWISE: PIPING SHALL BE SCH. 40.

3. GALVANIZED MATERIALS SHALL NOT BE USED.

FLANGES:

1. ASTM A105 FLANGES PER ASME B16.5 FOR PRESSURE RATINGS UP TO ANSI CLASS 600, USE RAISED FACE (RF), WELD–NECK (WN) FLANGES. BORE SHALL MATCH PIPE BORE. RAISED FACE SURFACING SHALL BE GROOVED FOR GASKET TYPE. SURFACE FINISH SHALL BE 125 to 250 Ra μ–IN FOR SPIRAL WOUND GASKETS. FLANGES LOCATED IN TRENCHES, VAULTS, OR CONCEALED ABOVE GRADE SHALL BE ANSI CLASS 300. ABOVE GRADE EXPOSED FLANGES MAY BE ANSI CLASS 150. DO NOT USE FLANGES IN OVERHEAD PIPING.

2. GASKETS SHALL BE SPIRAL WOUND TYPE WITH EXTERNAL CENTERING RING. GASKET SHALL CONFORM TO ASME B16.20. THE GASKET SHALL BE TYPE 304 STAINLESS STEEL SPIRAL WOUND STRIP WITH FLEXIBLE PTFE FILLER. GASKET THICKNESS SHALL BE MANUFACTURER'S STANDARD THICKNESS. BACKING RING SHALL ACT AS A COMPRESSION STOP AND REINFORCEMENT FOR PRESSURE CONTAINMENT. INSTALL PER MANUFACTURER'S REQUIREMENTS.

3. BOLTS SHALL BE PER ASTM A193 GR B7 AND INSTALLED WITH THRU HARDENED STEEL WASHERS. TYPE 1, CIRCULAR, PER ASTM F436.

4. HEX NUTS PER ASTM A194 GR 2H HEAVY HEX

5. WASHERS SHALL BE: TYPE 1, CIRCULAR, THROUGH HARDENED MATERIAL AND DIMENSIONS PER ASTM F436 (2010), 38–45 HRC HARDNESS. WASHERS SHALL BE MARKED WITH A SYMBOL INDICATING THE TYPE.

6. BOLT UP FLANGES USING PROCEDURE FROM ASME PCC–1 OR THE GASKET MANUFACTURER. USE TORQUE WRENCH AND RECORD TORQUE FOR EACH PASS.

FITTINGS:

1. BUTT WELD FITTINGS – ASTM A234 WPB FOR CARBON STEEL FITTINGS PER B16.9, SHORT RADIUS ELBOWS AND RETURNS PER B16.28.

2. THREADED FITTINGS: – MALLEABLE IRON THREADED FITTINGS: ASME B16.3, CLASS 300, STANDARD PATTERN. NO CAST IRON FITTINGS ARE ALLOWED. NO CLOSE NIPPLES ARE ALLOWED. DO NOT USE THREADED FITTINGS AT INACCESSIBLE PIPING, OR IN PIPING VAULTS AND TRENCHES EXCEPT AT EQUIPMENT, STRAINERS AND VALVES.

3. SOCKET WELD FITTINGS – 3000# FITTINGS PER ASME B16.11, & ASTM A105. USE SOCKET WELD FITTINGS AT INACCESSIBLE LOCATIONS, TRENCHES, OVERHEAD AND IN VAULTS.

4. WELD–ON FITTINGS: THREADOLETS SHALL BE ASTM A105 FORGED STEEL, CLASS 3000.

5. GALVANIZED MATERIALS SHALL NOT BE USED.

FLEXIBLE CONNECTORS:

STAINLESS–STEEL BELLOWS WITH WOVEN, FLEXIBLE, BRONZE OR STAINLESS–STEEL, WIRE–REINFORCING PROTECTIVE JACKET.

VALVES:

1. BALL VALVES 4" AND SMALLER SHALL BE LOCKABLE, QUARTER TURN, BLOWOUT PROOF STEM, FORGED BRASS BODY, THREADED CONNECTIONS, 600 PSIG NON–SHOCK COLD WORKING PRESSURE RATING FOR 1/4" TO 2" SIZE, 450 PSIG NON–SHOCK COLD WORKING PRESSURE RATING FOR 2 1/2" TO 4" SIZE, PTFE SEAT, HARD CHROME PLATED BALL, UL 842 LISTED FOR FLAMMABLE LIQUIDS. MORRISON BROTHERS 691B OR APPROVED EQUAL.

2. THERMAL RELIEF CHECK VALVES: SHALL BE DUCTILE IRON BODY CLASS 200 CWP, STAINLESS STEEL CAP, DESIGNED SPECIFICALLY FOR PETROLEUM BASED FUEL SYSTEMS. MORRISON BROTHERS FIG 076DI–0100AV OR APPROVED EQUAL 25 PSI RELIEF.

3. THERMAL RELIEF VALVES (TRV–1, TRV–2, TRV–3): SHALL BE DUCTILE IRON BODY CLASS 200 CWP, STAINLESS STEEL CAP, DESIGNED SPECIFICALLY FOR PETROLEUM BASED FUEL SYSTEMS. MORRISON BROTHERS FIG 076DI–0200AV OR APPROVED EQUAL 50 PSI RELIEF.

FIRE RESISTIVE WRAP:

1. BASIS OF DESIGN: 3M(TM) INTERAM(TM) ENDOTHERMIC MAT E–5A–4 FOR 2 HOUR F RATING, UL HNKJ.FP–1 SYSTEM FOR SINGLE CONTAINMENT PIPING. WRAP AND SECURE PER MANUFACTURER'S INSTRUCTIONS TO MAINTAIN UL RATING. FINISH SYSTEM WITH 3M FIRE BARRIER SEALANT CP 25WB+, 3M FIRE BARRIER WATER TIGHT SEALANT 3000 WT,3 M ALUMINUM FOIL TAPE 425. ALL MATERIALS SHALL BE FROM SAME MANUFACTURER OR PRESCRIBED IN THE INSTALLATION MANUAL.

SUPPORTS & ANCHORS:

1. SUPPORTS AND ANCHORS SHALL BE PER THE DRAWINGS. "EQUAL" PRODUCTS MAY BE SUBMITTED. UNLESS OTHERWISE NOTED, SUPPORT MATERIALS SHALL CONSIST MSS–SP–58 MANUFACTURED PRODUCTS OR FABRICATED OF THE FOLLOWING:

STRUCTURAL STEEL:

PLATES AND ANGLES	ASTM A36, FY = 36 KSI
TUBE STEEL	ASTM A500 GR B, FY = 46 KSI
BOLTS	ASTM A307
ANCHOR BOLTS	ASTM A36 THREADED RODS OR A307
EPOXY ANCHORS	ICC ES EVALUATED–IBC COMPLIANT HILTI HY–150 ANCHOR SYSTEM OR HVA SYSTEM W/ ASTM A36 THREADED RODS OR AISI TYPE 304 STAINLESS STEEL IN WET AREAS.
STAINLESS STEEL BOLTS, HEX CAP SCREWS, AND STUDS	ASTM F593

TUBING:

1. ALL TUBING AND FITTINGS SHALL BE OF THE SAME MANUFACTURER. SWAGELOK IS THE BASIS OF DESIGN.

2. TUBING MATERIAL: SEAMLESS BRIGHT ANNEALED 316L STAINLESS STEEL, 1/2" X 0.049" WALL THICKNESS, 3/4" X 0.065" WALL THICKNESS, ASTM A213/A269.

2. TUBING SYSTEM FITTINGS SHALL HAVE GAUGE SPACER TO VERIFY THE FITTING IS ATTACHED PROPERLY.

4. FITTINGS: TYPE 316 STAINLESS STEEL, ASTM A213/A269, NUT AND DOUBLE FERRULE, 4,000 PSI MINIMUM PRESSURE RATING.

3. HYDROTEST TUBING WITH THE MAIN PIPING.

DUCT

1. UNDERGROUND DUCTWORK, INCLUDING FITTINGS, SHALL BE CONSTRUCTED OF FIBERGLASS REINFORCED PLASTIC.

2. RESIN – THE RESIN USED SHALL BE HIGH GRADE POLYESTER, TESTED TO MEET THE REQUIREMENTS OF UNIFORM MECHANICAL CODE, CHAPTER 6 AND SUITABLE FOR CORROSION AGAINST ALL NORMAL SOIL AND MOISTURE CONDITIONS. RESIN SYSTEMS WITH FILLERS EXCEEDING 5% WILL NOT BE APPROVED.

3. INNER LINING – ALL DUCT AND FITTINGS SHALL HAVE A UL LISTED CLASS 1 INNER LINER FOR BOTH FLAME SPREAD AND SMOKE DEVELOPED RATINGS.

4. STRUCTURAL LAYER – THE STRUCTURAL LAYER SHALL BE FILAMENT WOUND OF RESIN AND GLASS TO MEET THE SPECIFIED WORKING PRESSURES AND DEPTH OF BURIAL REQUIREMENTS.

5. FOLLOW MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS FOR JOINTING, PLACEMENT, BEDDING, AND BACKFILL.

SLEEVES, SEALS, AND PENETRATIONS

1. STEEL PIPE: ASTM A 53, TYPE ERW, GRADE B, SCHEDULE 40, GALVANIZED, PLAIN ENDS. COORDINATE LOCATIONS WITH GENERAL CONTRACTOR FOR SEALS TO BE CAST IN CONCRETE.

2. SEALS: FLEXICRAFT PIPESEAL OR APPROVED EQUAL. FINISH EXPOSED WALL SURFACES AND UNDERGROUND EARTH EXPOSED CAVITIES WITH GROUT.

PUMPS, TANKS, FANS:

1. SEE SCHEDULES ON DRAWING M0.1.

ANCHORAGE

1. EXPANSION ANCHORS SHALL NOT BE USED IN WET AREAS, BELOW GRADE AREAS, OR HIGH CYCLING SYSTEMS.

2. ADHESIVE ANCHORS SHALL CONSIST OF ALL–THREAD ANCHOR ROD, NUT, WASHER, AND EPOXY INJECTION GEL OR ADHESIVE CAPSULE SYSTEM. WET AREA ANCHOR RODS (UTILITY TRENCHES–TUNNELS) SHALL BE MANUFACTURED FROM AISI 304 STAINLESS STEEL THREADED ROD. DRY AREA ANCHOR RODS SHALL BE MANUFACTURED FROM A–36 MATERIAL, ZINC PLATED IN ACCORDANCE WITH ASTM B633.

3. ALL RELATED PRODUCTS, MATERIALS, AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

4. ALTERNATE PRODUCTS BY OTHER MANUFACTURERS MAY BE SUBSTITUTED WITH WRITTEN APPROVAL OF STRUCTURAL ENGINEER OF RECORD. PROVIDE ICC–ES SHOWING EQUAL OR GREATER LOAD CAPACITIES AND COMPLIANCE WITH THE GOVERNING IBC FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AVAILABILITY OF COMPREHENSIVE, AND INSTALLATION INSTRUCTIONS. ADHESIVE ANCHORS WILL ALSO CONSIDER CREEP, IN–SERVICE TEMPERATURES, AND INSTALLATION TEMPERATURES.

COATINGS

1. COATINGS FOR EXTERIOR SURFACES (PIPE SUPPORTS, ETC.)

2. SOLVENT CLEAN PER SSPC–SP1._PREPARE SURFACES PER SSPC–SP6.

3. USE DEVOE DEVFLEX 4020 OR ENGINEER APPROVED EQUAL.

4. APPLY ALL COATINGS IN ACCORDANCE TO THE MANUFACTURER'S INSTRUCTIONS.

5. USE SAME COATING FOR REPAIRS.

COATING EXECUTION:

1. DO NOT COAT GALVANIZED OR STAINLESS STEEL SURFACES.

2. COAT ALL EXPOSED BARE STEEL UNLESS NOTED OTHERWISE.

3. APPLY ALL COATINGS IN ACCORDANCE TO THE MANUFACTURER'S INSTRUCTIONS.

4. COATINGS TO BE REPAIRED IN THE FIELD PER MANUFACTURER'S INSTRUCTIONS.

GROUT

1. NONSHRINK CEMENTATIOUS GROUT SHALL BE A PRE–PROPORTIONED, PREPACKAGED, PRECISION CEMENT BASED GROUT REQUIRING ONLY THE ADDITION OF POTABLE WATER. THE GROUT SHALL NOT CONTAIN METALLIC AGGREGATE, EXPANSIVE CEMENT, OR GAS GENERATING ADDITIVES SUCH AS ALUMINUM POWDER. THE GROUT SHALL CONTAIN AN AIR RELEASE AGGREGATE TO GENERATE POSITIVE EXPANSION.

2. EARLY HEIGHT CHANGE, ASTM C 827 0.0 TO 4.0% COMPRESSIVE STRENGTH, ASTM C 109, 28 DAYS 8000 PSI BOND STRENGTH, ASTM C 882, 28 DAYS 2000 PSI. MEETS PERFORMANCE REQUIREMENTS OF ASTM C 1107, GRADES A, B AND C.

3. MANUFACTURER: FIVE STAR GROUT OR ENGINEER APPROVED EQUAL. THE MANUFACTURER SHALL BE ISO 9001 CERTIFIED AND HAVE AT LEAST FIVE YEARS EXPERIENCE IN THE MANUFACTURE OF PRECISION CEMENT–BASED GROUTS. THE GROUT MATERIAL SHALL MEET ALL THE FOLLOWING TYPICAL PERFORMANCE CRITERIA WHEN CURED AT 70°F.

GROUT PLACEMENT:

1. MIX AND INSTALL GROUT FOR BASE PLATES, AND ANCHORS. CLEAN AND ROUGHEN CONCRETE SURFACES THAT WILL COME INTO CONTACT WITH GROUT. ALL SURFACES IN CONTACT WITH GROUT SHALL BE FREE OF OIL, GREASE, AND OTHER CONTAMINANTS. CONCRETE MUST BE CLEAN, SOUND AND ROUGHENED TO ENSURE A GOOD BOND. SOAK CONCRETE SURFACE FOR 8 TO 24 HOURS OR AS INDICATED ON PRODUCT INSTRUCTIONS.

2. PLACE GROUT IN TEMPERATURE RANGE OF 40°F TO 90°F:

3. GROUT DEPTH SHALL BE 1" MIN.–3" MAX. FORM AND POUR SELF LEVELING GROUT. POUR FROM ONE SIDE TO PURGE AIR FROM UNDER BASEPLATE. PROVIDE FORMS AS REQUIRED FOR PLACEMENT OF GROUT. AVOID AIR ENTRAPMENT DURING PLACEMENT OF GROUT. PLACE GROUT, COMPLETELY FILLING BASEPLATE AREA. WET CURE PLACED GROUT FOR 30 MINUTES.

SEISMIC DESIGN CONDITIONS:

1. SUPPORTS AND RESTRAINTS AS INDICATED ON DRAWINGS.

2. SEE STRUCTURAL DRAWINGS FOR DESIGN FACTORS.

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STAMP 12/10/2021

SHEET TITLE: **SPECIFICATIONS**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION:
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By
1	12/10/2021	CEI

PROJ. NO. 2021-10628
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CHECKED MJS
DATE 12/10/2021

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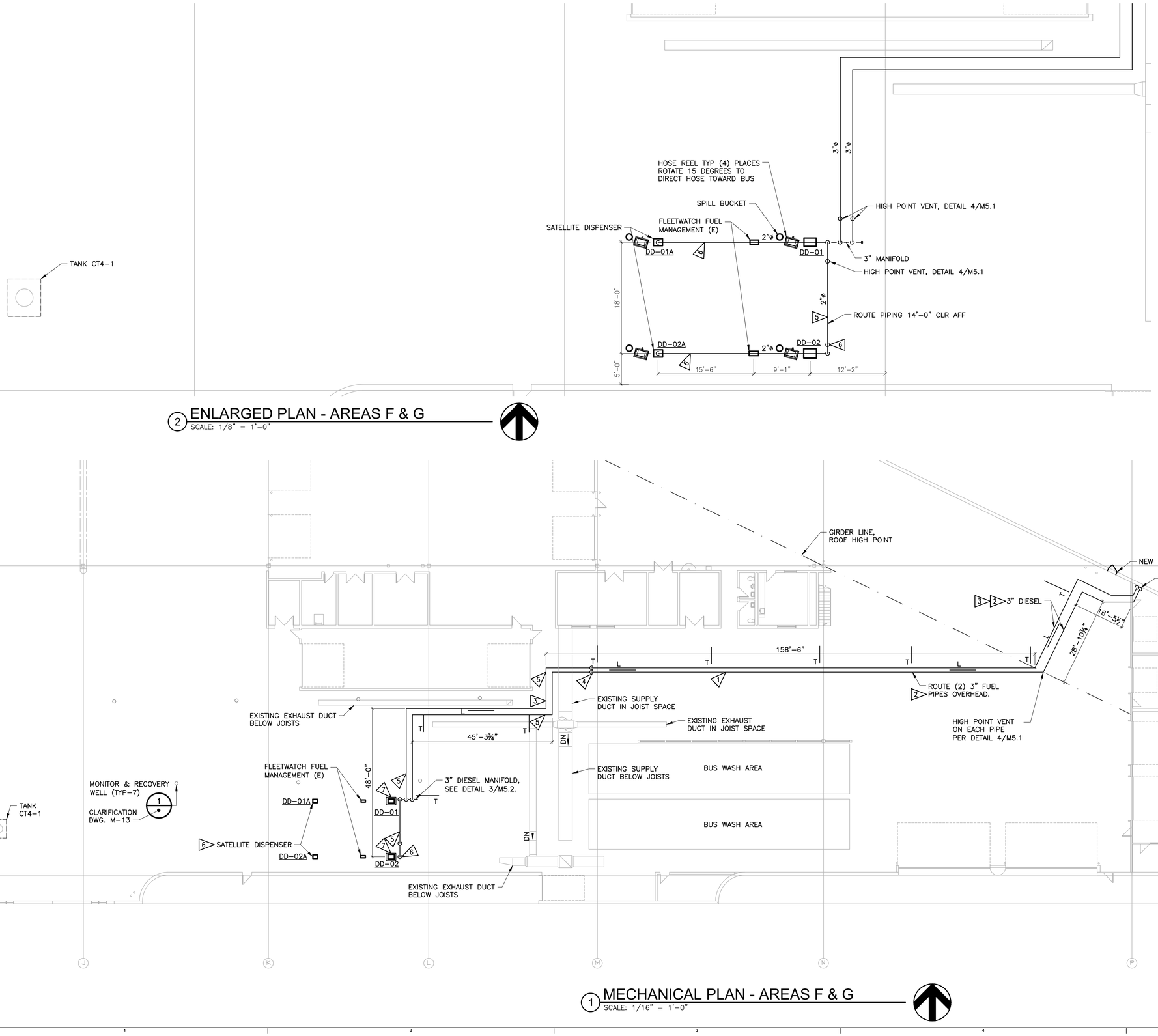
SHEET: M0.2



2 ENLARGED PLAN - AREAS F & G

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

1 MECHANICAL PLAN - AREAS F & G

SCALE: 1/16" = 1'-0"

GENERAL NOTES

1. DIMENSIONS ARE FOR REFERENCE ONLY. ACTUAL PIPE ROUTE WILL VARY IN ORDER TO ALIGN WITH OPENINGS IN TRUSS SPACE.
1 2. ALL OVERHEAD 2" AND 3" PIPING IS TO BE WELDED. DO NOT USE FLANGED OR THREADED JOINTS ON OVERHEAD 2" AND 3" PIPE.
3. BOTTOM OF DIESEL PIPE SHALL BE 14'-0" MINIMUM ABOVE FLOOR.
4. SLOPE DIESEL PIPE DOWN FROM HIGH POINT. DO NOT CREATE POCKETS IN PIPE.
5. " T" INDICATES APPROXIMATE LOCATION OF TRANSVERSE SEISMIC BRACE. "L" INDICATES LOCATION OF LONGITUDINAL SEISMIC BRACE. LOCATE TRANSVERSE BRACES WITHIN 3' OF END OF PIPE RUN AS SHOWN. MAX SPACING OF BRACING IS 40'-0" OC FOR TRANSVERSE BRACES AND 100'-0" OC FOR LONGITUDINAL BRACES. SEE STRUCTURAL DRAWINGS 7 & 8/S5.1.
6. PIPE SUPPORT SPACING SHALL BE PER MSS-SP-58: 3" PIPE – 12 FEET, 2" PIPE – 10 FEET, 3/4" TUBING – 7 FEET.
7. PIPING FROM MANIFOLD TO MANIFOLD SHALL HAVE NO MORE THAN 75 ELBOWS IN EACH 3" RUN.
1 8. SEE SECTION 002100 PART 1.1B AND SECTION 003100 AS RELATED TO SCHEDULE AND PHASING OF THE WORK. WORK INDOORS MUST BE COORDINATED WITH STA AND MUST NOT DISRUPT EXISTING BUS WASHING AND FUELING OPERATIONS.
9. PAINT EXPOSED STEEL PIPING. DO NOT PAINT VALVES, TUBING, STAINLESS OR GALVANIZED SURFACES. APPLY LABELS AND FLOW DIRECTION ARROWS TO PIPING. NUMBER VALVES AND PROVIDE VALVE SCHEDULE. INSTALL FIRE WRAP ON ALL INTERIOR 3" PIPE.

SHEET NOTES

1 ALLOW FOR 3/4" EXPANSION AND CONTRACTION IN THE LONGEST STRAIGHT RUN SHOWN.

2 SUPPORT 3" PIPE IN TRUSS SPACE AT 12'-0" MAXIMUM SPAN. PROVIDE LATERAL BRACING AND SUPPORTS PER STRUCTURAL DETAILS.

3 SLOPE PIPE FOLLOWING ROOF SLOPE UP TO HIGH POINT. ROUTE PIPE ABOVE DUCT AND HEATERS.

4 ROUTE PIPE DOWN UNDER DUCT.

5 ROUTE PIPE TO AVOID LIGHTS AND DUCTWORK BELOW JOISTS.

6 DROP OVERHEAD 2" DIESEL FUEL PIPE TO DD-02. SEE DETAIL 3/M5.2. ROUTE PIPE TO SATELLITE DISPENSERS.

7 REPLACE/REPAIR CONCRETE FLOOR WHERE OLD DISPENSER SUMPS ARE REMOVED. NEW SUMPS ARE ABOVE GRADE. SEE STRUCTURAL DRAWINGS FOR REPAIR DETAILS.

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MARK JAMES SIPE — STATE OF WASHINGTON — 32601 — REGISTERED PROFESSIONAL ENGINEER
STAMP 12/10/2021

SHEET TITLE: **MECHANICAL PLAN - AREA F & G**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
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1230 W. Boone Avenue, Spokane, Washington 99201

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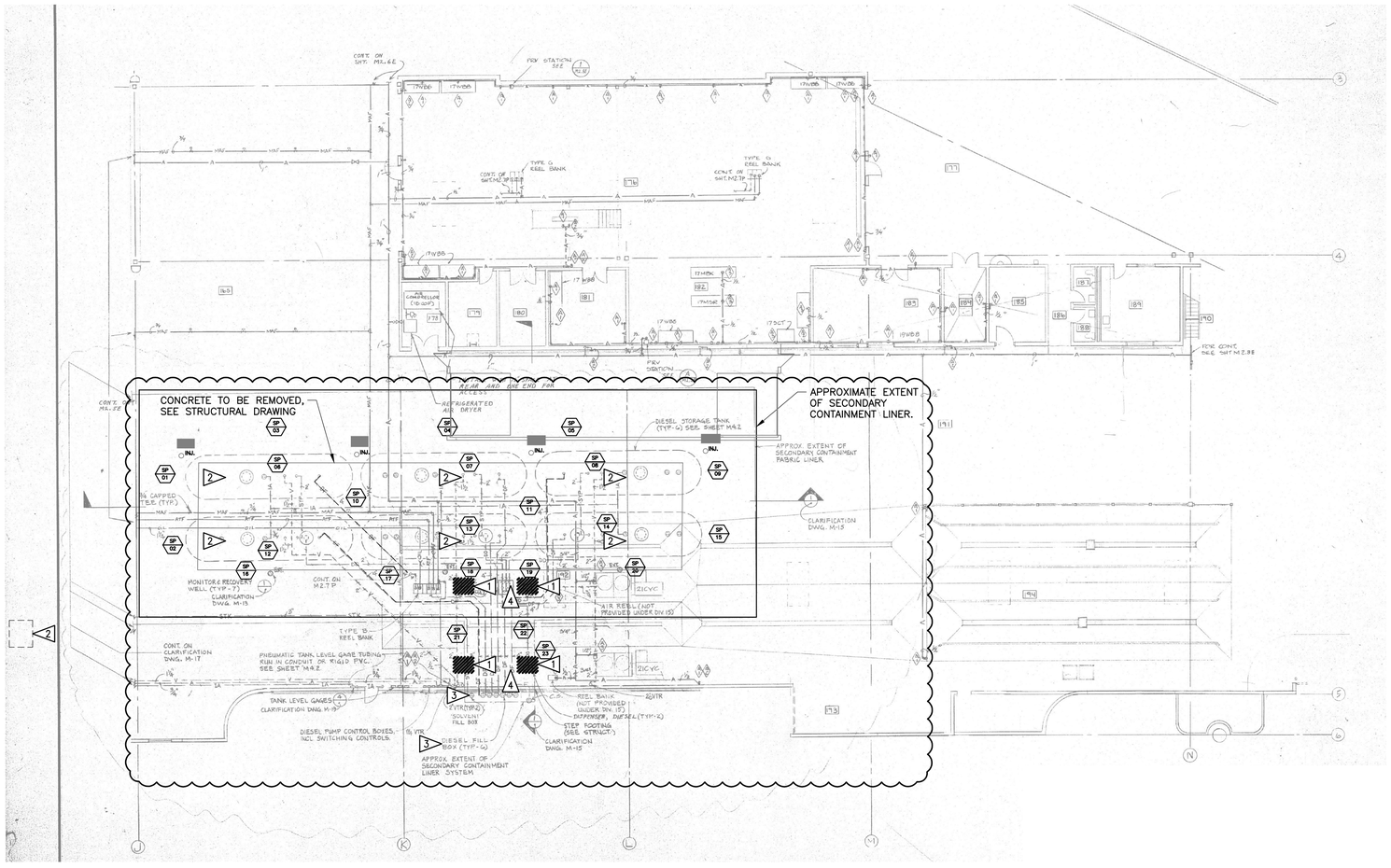
SHEET M1.1



1 AREA F - DEMOLITION PLAN
SCALE: 1/16" = 1'-0"

GENERAL NOTES:

1. EXISTING DIESEL PIPING BELOW GRADE TO BE FLUSHED, CAPPED, AND ABANDONED IN PLACE.

SHEET NOTES

1. REMOVE EXISTING FUEL DISPENSING UNITS AND VALVES. CUT CONCRETE AND REMOVE DISPENSER SUMPS. COLLECT SOIL SAMPLES UNDER THE SUMPS FOLLOWING THE DIRECTION OF THE STA ENVIRONMENTAL CONSULTANT. REMOVE AND CAP PIPING IN THE SUMP AREA AND ENDS OF PIPING AT EDGE OF CUT AREA.
2. UNDERGROUND DIESEL STORAGE TANKS AND PIPING TO BE ABANDONED IN PLACE. REMOVE PUMPS AND INTERNAL TANK EQUIPMENT. PERMANENT CLOSURE OF ANY UST SYSTEM SHALL BE COMPLETED BY A CERTIFIED UST SUPERVISOR. ALL TANKS SHALL BE FILLED WITH AN INERT SOLID MATERIAL. ALL PIPING SHALL BE CAPPED (EXCEPT ANY VENT LINES) OR REMOVED FROM THE GROUND. A CERTIFIED UST SUPERVISOR SHALL EMPTY AND CLEAN THE TANKS BY REMOVING ALL LIQUIDS AND ACCUMULATED SLUDGES. AFTER CLEANING, A SITE ASSESSMENT SHALL BE CONDUCTED IN ACCORDANCE WITH WAC 173-360-390. ANY SLUDGE REMOVED MUST BE DESIGNATED AND DISPOSED OF IN ACCORDANCE WITH THE DANGEROUS WASTE REGULATIONS, CHAPTER 173-303 WAC. A CLOSURE REPORT SHALL BE PREPARED AND SUBMITTED TO THE APPLICABLE AGENCIES. UNDERGROUND STORAGE TANKS ARE CONTAINED IN A COMMON SECONDARY CONTAINMENT BLADDER. THIS BLADDER HAS BECOME FILLED WITH WATER AS SEEN IN THE OBSERVATION PORTS. THE INTEGRITY OF THE BLADDER SHALL BE MAINTAINED DURING THE WORK. PUMP THE WATER FROM THE BLADDER SO THAT THE BOTTOM OF EVERY TANK CAN BE CUT. AFTER THE TANKS ARE CLEANED, CUT A HOLE IN THE BOTTOM OF EACH TANK. COLLECT SOIL SAMPLES UNDER THE SUMPS FOLLOWING THE DIRECTION OF THE STA ENVIRONMENTAL CONSULTANT.
3. REMOVE ABOVE GRADE PIPING AND CAP AT FLOOR.
4. REMOVE ABOVE GROUND PIPING BETWEEN THE DISPENSERS AND THE SATELLITE DISPENSERS. REMOVE HOSES. RETURN FILL NOZZLES TO STA FOR FUTURE USE.

SP 01 INDICATES SAMPLING POINT. TAKE SOIL SAMPLES AT THE LOCATIONS INDICATED.

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12/10/2021

SHEET TITLE
DEMOLITION PLAN - AREA F

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

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1230 W. Boone Avenue, Spokane, Washington 99201

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SHEET
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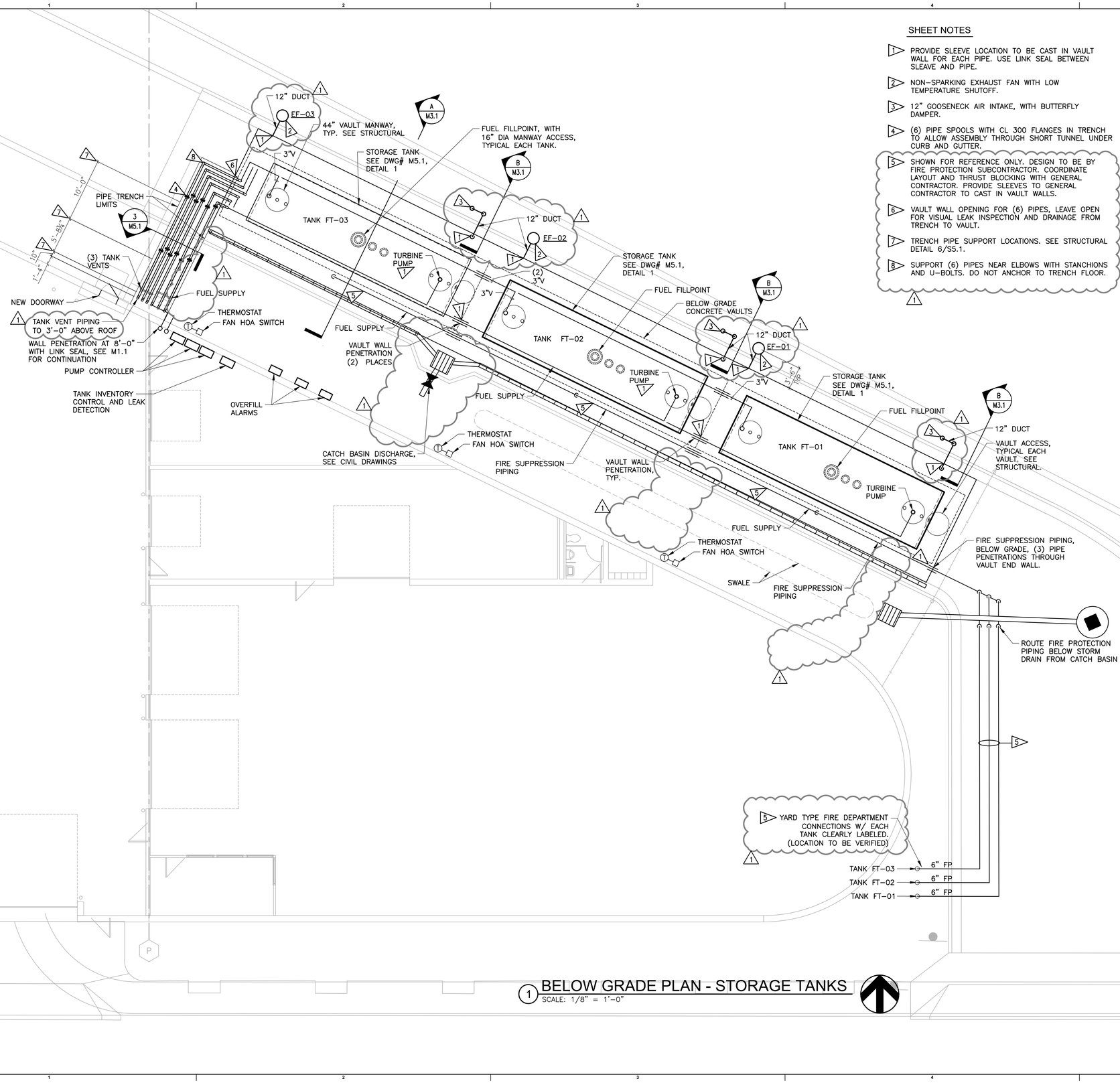

SHEET NOTES

1. PROVIDE SLEEVE LOCATION TO BE CAST IN VAULT WALL FOR EACH PIPE. USE LINK SEAL BETWEEN SLEAVE AND PIPE.
2. NON-SPARKING EXHAUST FAN WITH LOW TEMPERATURE SHUTOFF.
3. 12" GOOSENECK AIR INTAKE, WITH BUTTERFLY DAMPER.
4. (6) PIPE SPOOLS WITH CL 300 FLANGES IN TRENCH TO ALLOW ASSEMBLY THROUGH SHORT TUNNEL UNDER CURB AND GUTTER.
5. SHOWN FOR REFERENCE ONLY. DESIGN TO BE BY FIRE PROTECTION SUBCONTRACTOR. COORDINATE LAYOUT AND THRUST BLOCKING WITH GENERAL CONTRACTOR. PROVIDE SLEEVES TO GENERAL CONTRACTOR TO CAST IN VAULT WALLS.
6. VAULT WALL OPENING FOR (6) PIPES, LEAVE OPEN FOR VISUAL LEAK INSPECTION AND DRAINAGE FROM TRENCH TO VAULT.
7. TRENCH PIPE SUPPORT LOCATIONS. SEE STRUCTURAL DETAIL 6/S5.1.
8. SUPPORT (6) PIPES NEAR ELBOWS WITH STANCHIONS AND U-BOLTS. DO NOT ANCHOR TO TRENCH FLOOR.

GENERAL NOTES:

1. ALL TANKS ARE ABOVE GRADE UL-142 TYPE INSTALLED IN BELOW GRADE CONCRETE VAULTS.
2. SEE DETAIL 1/M5.1 FOR TANK DETAIL AND APPURTENANCES.
3. SEE PIPING DIAGRAM ON DRAWING M5.2 FOR CONNECTIONS.
4. EACH FAN TO BE INDEPENDENTLY CONTROLLED WITH THERMOSTAT AND HAND/OFF/AUTO SWITCH. IF OUTDOOR AIR TEMPERATURE IS BELOW 40°F FAN SHALL BE OFF. FAN MAY BE USED FOR MAINTENANCE ACCESS OR TO REMOVE MOISTURE BY USING THE HAND SWITCH POSITION. PROVIDE PLACARD ON EACH FAN STATING "IN CASE OF FIRE, FAN TO BE SWITCHED OFF".
5. PROVIDE SLEEVES AND COORDINATE LOCATION OF SLEEVES WITH GENERAL CONTRACTOR.
6. PROVIDE DRAIN PLUG AT LOW POINTS IN FIRE SUPPRESSION SUPPLY PIPING.
7. FIRE SUPPRESSION PIPING, STANDPIPES AND FIRE DEPARTMENT CONNECTIONS SHOWN ON THIS DRAWINGS ARE FOR REFERENCE ONLY. FIRE SUPPRESSION SYSTEM SHOP DRAWINGS TO BE DEFERRED SUBMITTAL BY FIRE PROTECTION CONTRACTOR, PER DIVISION 21 SPECIFICATIONS.

1 BELOW GRADE PLAN - STORAGE TANKS
SCALE: 1/8" = 1'-0"

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SHEET TITLE
BELOW GRADE PLAN - STORAGE TANKS

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
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1230 W. Boone Avenue, Spokane, Washington 99201

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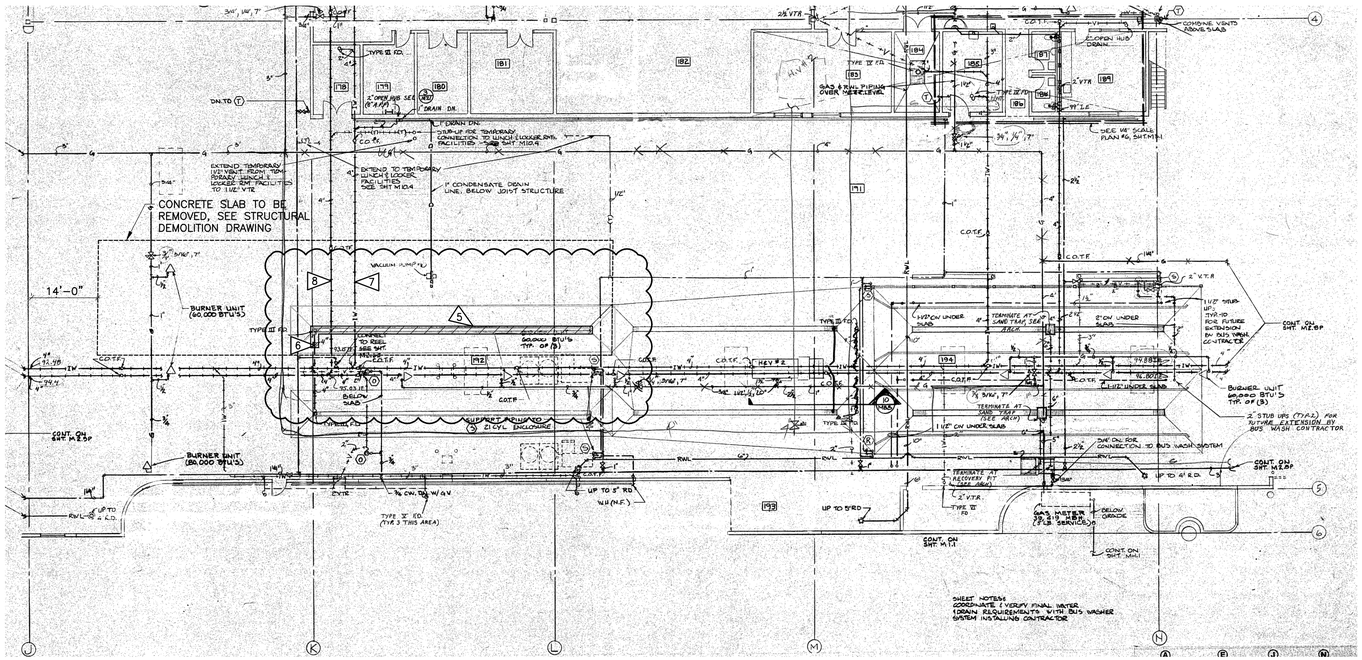
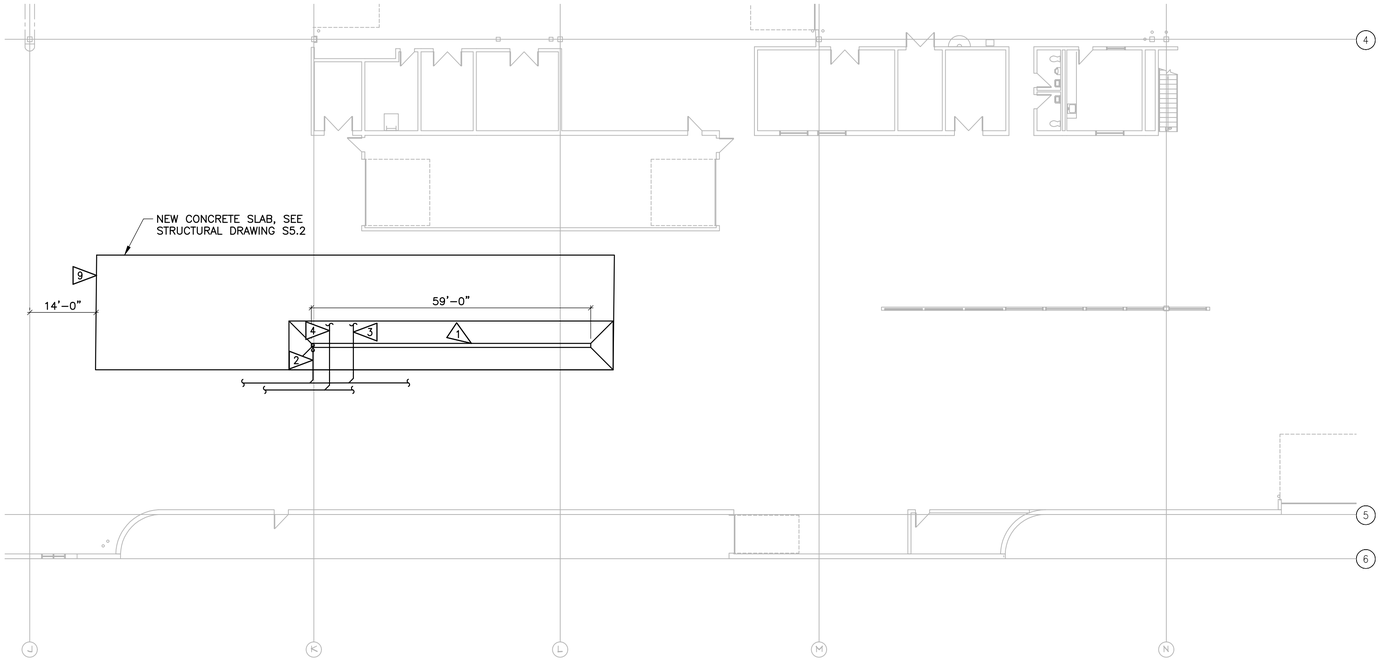
SHEET M1.3



2 AREA F FIRST FLOOR PLUMBING DEMOLITION PLAN
SCALE: 1/16" = 1'-0"



1 AREA F FIRST FLOOR PLUMBING PLAN
SCALE: 1/16" = 1'-0"

SHEET NOTES

1. NEW PREFORMED TRENCH DRAIN WITH BOTTOM OUTLET. MATCH EXISTING DEPTH. INSTALL WITH TRAP. SET ELEVATION FOR FLOOR SLOPE OF 1/8" PER FOOT.
2. CONNECT TO 4" INDUSTRIAL WASTE LINE WITH NOHUB COUPLING.
3. EXISTING INDUSTRIAL WASTE BELOW NEW TRENCH DRAIN.
4. EXISTING SANITARY WASTE BELOW NEW TRENCH.
5. REMOVE TRENCH DRAIN WHEN CONCRETE SLAB IS REMOVED.
6. CUT 4" INDUSTRIAL WASTE LINE AND REMOVE PIPE. LEAVE CLEAN CUT FOR RECONNECTION TO NEW PIPE AND TRENCH DRAIN.
7. INDUSTRIAL WASTE TO REMAIN.
8. SANITARY WASTE TO REMAIN.
9. REPLACE/REPAIR CONCRETE FLOOR WHERE OLD DISPENSER SUMPS ARE REMOVED. NEW SUMPS ARE ABOVE GRADE. SEE STRUCTURAL DRAWINGS FOR REPAIR DETAILS. DO NOT REPLACE TANK ACCESS MANHOLES THAT ARE REMOVED. DO REPLACE THE ACCESS LIDS FOR THE MONITORING AND INJECTION WELLS SERVING THE CONTAINMENT BLADDER.

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MARK JAMES SIPE
STATE OF WASHINGTON
32601
REGISTERED
PROFESSIONAL ENGINEER
STAMP 12/10/2021

SHEET TITLE
PLUMBING PLAN - AREA F

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By
1	12/10/2021	CEI

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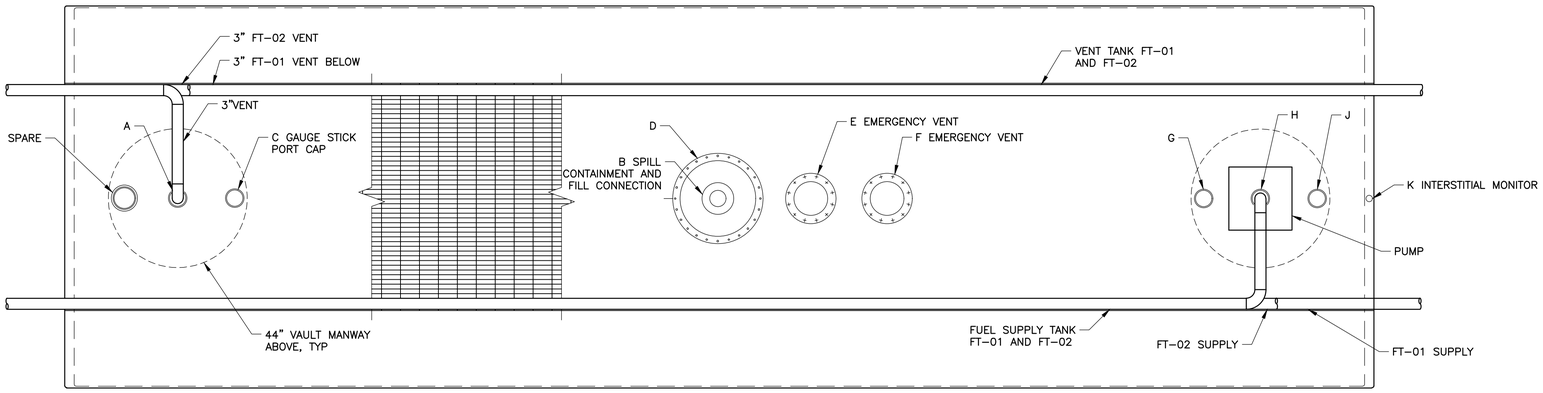
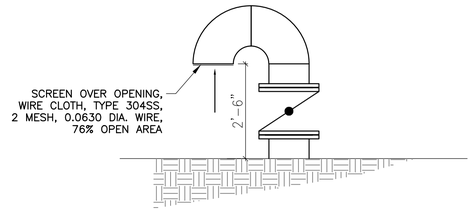
PROJ. NO. 2021-10628
DRAWN JLJ
CHECKED MJS
DATE 12/10/2021

SHEET M1.4

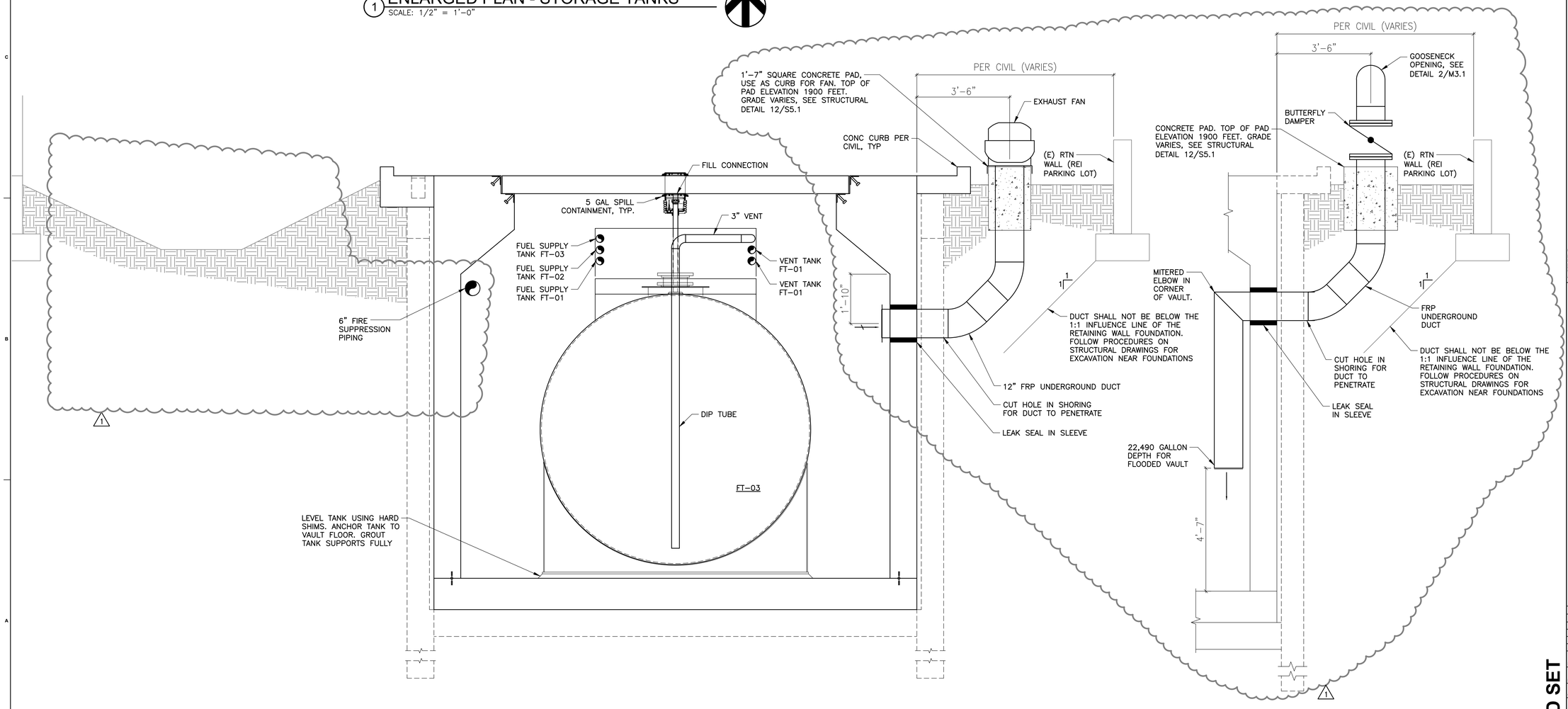


NOTE: TANK FT-03 SHOWN, TANKS FT-02, FT-01 ARE SIMILAR

1 ENLARGED PLAN - STORAGE TANKS
SCALE: 1/2" = 1'-0"



2 GOOSENECK DUCT TERMINATION
SCALE: 1/2" = 1'-0"



A SECTION - STORAGE TANKS
SCALE: 1/2" = 1'-0"

B FRESH AIR DUCT
SCALE: 1/2" = 1'-0"

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PROFESSIONAL ENGINEER
STAMP 12/10/2021

SHEET TITLE: **SECTIONS**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION:
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS		
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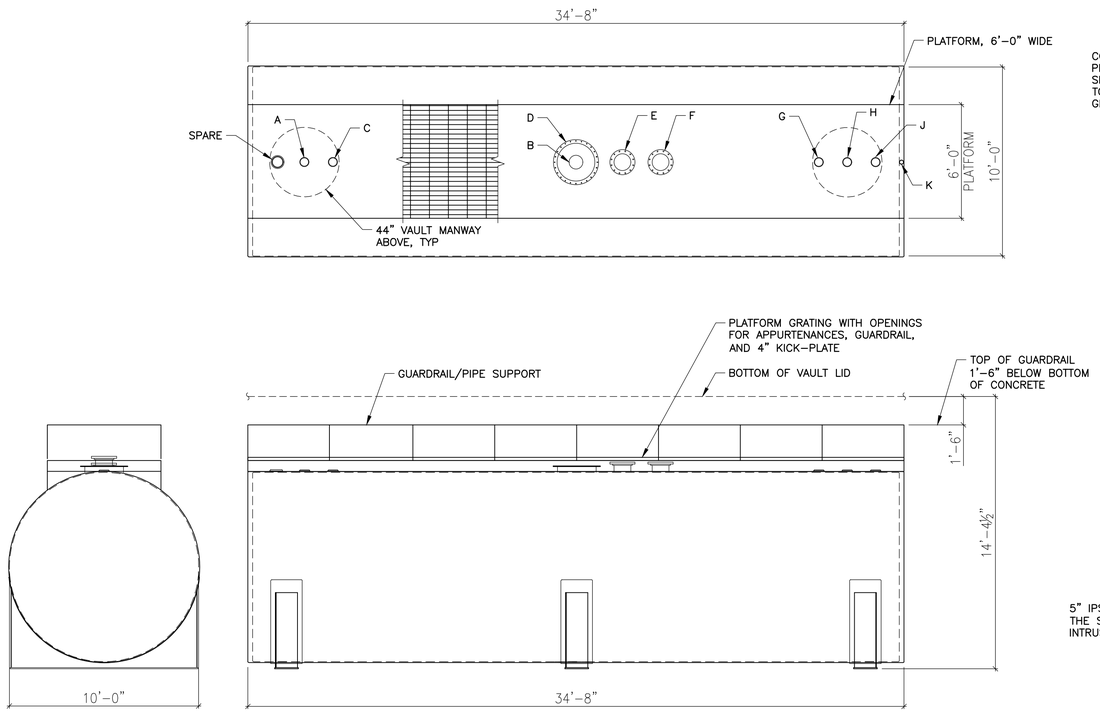
SHEET: M3.1



TANK CONNECTION SCHEDULE

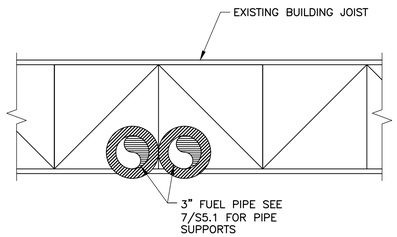
POINT	SIZE	TYPE	DESCRIPTION
A	4"	FNPT	NORMAL VENT
B	4"	FNPT	FILL
C	4"	FNPT	STICK GUAGE
D	24"	FLANGED	MANWAY
E	10"	FLANGED	EMERGENCY VENT
F	10"	FLANGED	INTERSTITIAL EMERGENCY VENT
G	4"	FNPT	TANK LEVEL SENSORS
H	4"	FNPT	PUMP
J	4"	FNPT	WATER DRAW
K	2"	FNPT	INTERSTITIAL MONITOR

NOTES:

1. PROVIDE ALL EQUIPMENT AND SIGNAGE NECESSARY FOR A COMPLETE DISPENSING SYSTEM.
2. PROVIDE FUEL SITE CONTROLLER, SOFTWARE, INTERFACES AND PERIPHERALS.
3. PROVIDE EMERGENCY STOP & ASSOCIATED EQUIPMENT. LOCATE FOR EASE OF ACCESS DURING OPERATIONS.
4. PROVIDE TANK MOUNTED FIRE EXTINGUISHER & 50 GALLON SPILL RESPONSE KIT.
5. DIMENSIONS ARE FOR REFERENCE ONLY, VERIFY WITH SPECIFICATIONS OF PACKAGE SYSTEM THAT IS TO BE PURCHASED.
6. PROVIDE GROUNDING LUGS FOR TANK, DISPENSER AND EQUIPMENT.
7. SEE STRUCTURAL FOR SUPPORTS AND ANCHORAGE.
8. ARRANGEMENT OF EQUIPMENT IS SHOWN FOR REFERENCE ONLY.

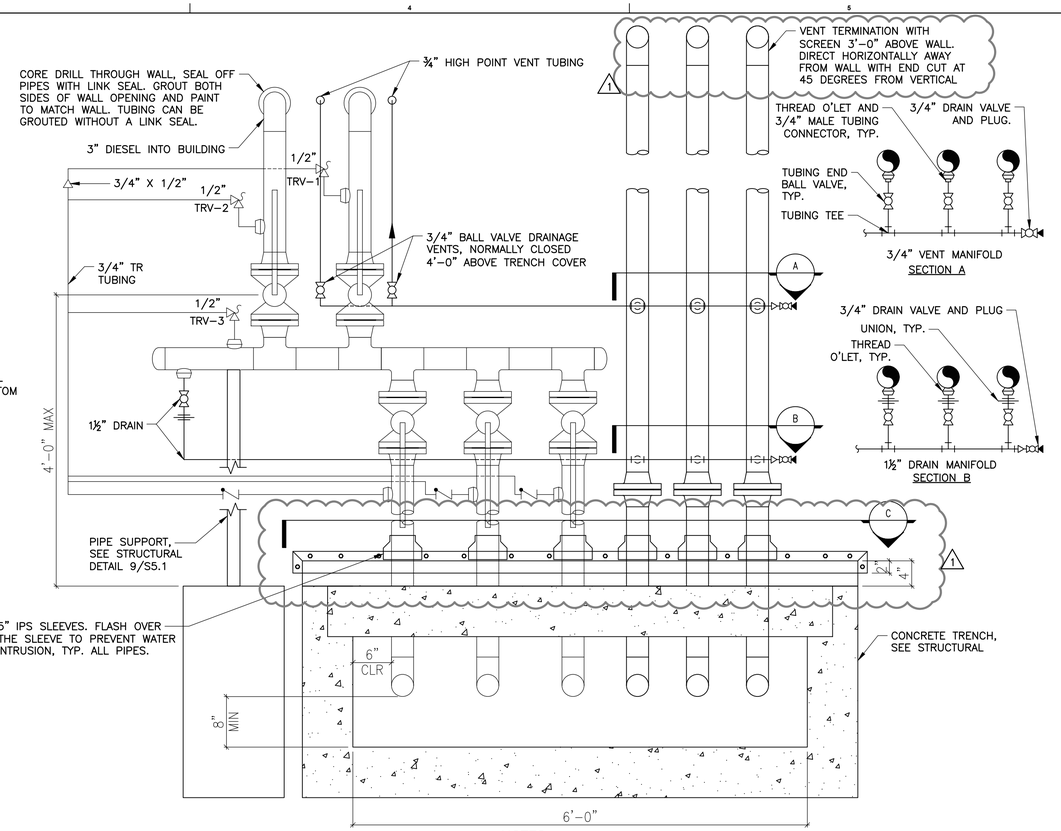
1 20,000 GALLON DIESEL DISPENSING DOUBLE WALL TANK PLAN & SECTION

SCALE: N.T.S.



2 PIPE DETAIL

SCALE: N.T.S.



NOTES:

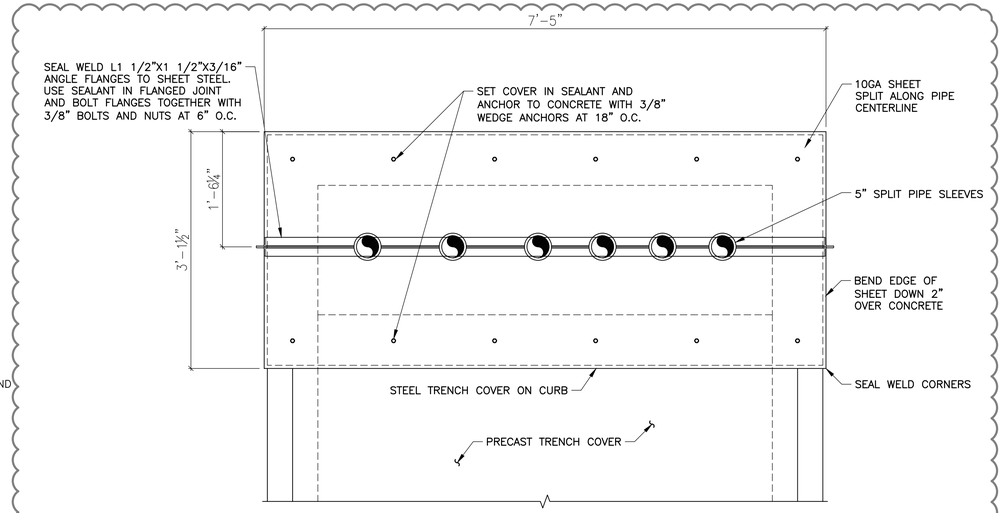
1. PAINT PIPE AND STEEL COVER TO MATCH BUILDING.
2. SEE STRUCTURAL DRAWING S5.1 FOR CONCRETE AND PIPE SUPPORTS.

3 MANIFOLD ELEVATION

SCALE: 1" = 1'-0"

4 HIGH POINT VENT DETAIL

SCALE: 1" = 1'-0"



NOTES:

1. PAINT PIPE AND STEEL COVER TO MATCH BUILDING COVER.

C TRENCH COVER AND FLASHING DETAIL

SCALE: 1" = 1'-0"

1

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MARK JAMES SIPE — STATE OF WASHINGTON — 32601 — REGISTERED PROFESSIONAL ENGINEER

STAMP 12/10/2021

SHEET TITLE: MECHANICAL DETAILS & DIAGRAM

PROJECT NAME & ADDRESS: FUELING FACILITY, 1229 W. Boone Avenue, Spokane, Washington

CLIENT INFORMATION: Spokane Transit Authority, 1230 W. Boone Avenue, Spokane, Washington 99201

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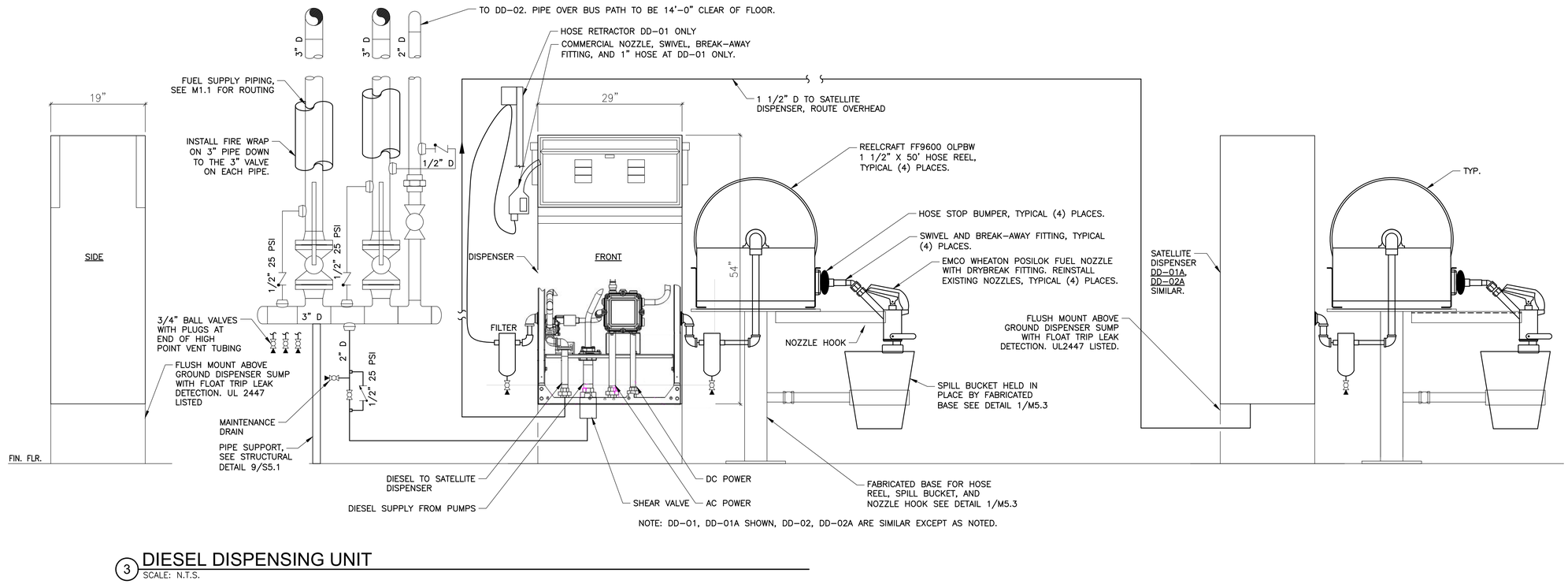
SHEET M5.1



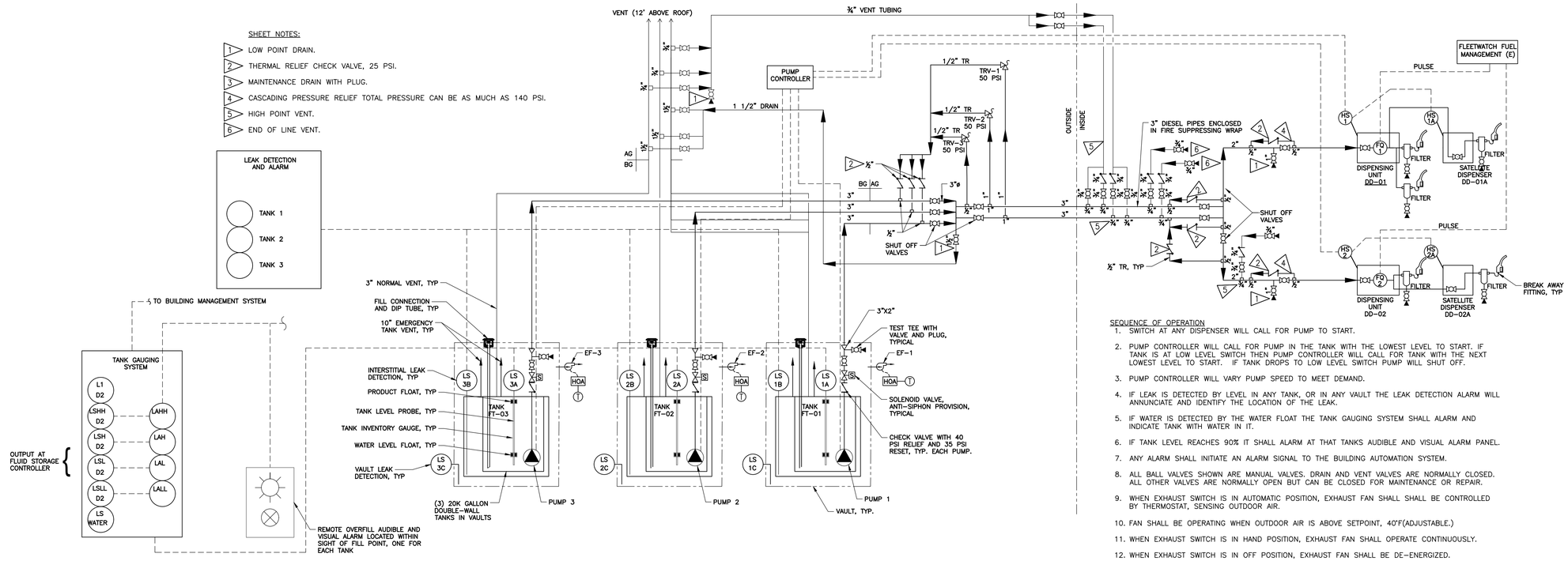
NOTE: DD-01, DD-01A SHOWN, DD-02, DD-02A ARE SIMILAR EXCEPT AS NOTED.

3 DIESEL DISPENSING UNIT

SCALE: N.T.S.

SHEET NOTES:

1. LOW POINT DRAIN.
2. THERMAL RELIEF CHECK VALVE, 25 PSI.
3. MAINTENANCE DRAIN WITH PLUG.
4. CASCADING PRESSURE RELIEF TOTAL PRESSURE CAN BE AS MUCH AS 140 PSI.
5. HIGH POINT VENT.
6. END OF LINE VENT.



SEQUENCE OF OPERATION

1. SWITCH AT ANY DISPENSER WILL CALL FOR PUMP TO START.
2. PUMP CONTROLLER WILL CALL FOR PUMP IN THE TANK WITH THE LOWEST LEVEL TO START. IF TANK IS AT LOW LEVEL SWITCH THEN PUMP CONTROLLER WILL CALL FOR TANK WITH THE NEXT LOWEST LEVEL TO START. IF TANK DROPS TO LOW LEVEL SWITCH PUMP WILL SHUT OFF.
3. PUMP CONTROLLER WILL VARY PUMP SPEED TO MEET DEMAND.
4. IF LEAK IS DETECTED BY LEVEL IN ANY TANK, OR IN ANY VAULT THE LEAK DETECTION ALARM WILL ANNUNCIATE AND IDENTIFY THE LOCATION OF THE LEAK.
5. IF WATER IS DETECTED BY THE WATER FLOAT THE TANK GAUGING SYSTEM SHALL ALARM AND INDICATE TANK WITH WATER IN IT.
6. IF TANK LEVEL REACHES 90% IT SHALL ALARM AT THAT TANKS AUDIBLE AND VISUAL ALARM PANEL.
7. ANY ALARM SHALL INITIATE AN ALARM SIGNAL TO THE BUILDING AUTOMATION SYSTEM.
8. ALL BALL VALVES SHOWN ARE MANUAL VALVES. DRAIN AND VENT VALVES ARE NORMALLY CLOSED. ALL OTHER VALVES ARE NORMALLY OPEN BUT CAN BE CLOSED FOR MAINTENANCE OR REPAIR.
9. WHEN EXHAUST SWITCH IS IN AUTOMATIC POSITION, EXHAUST FAN SHALL SHALL BE CONTROLLED BY THERMOSTAT, SENSING OUTDOOR AIR.
10. FAN SHALL BE OPERATING WHEN OUTDOOR AIR IS ABOVE SETPOINT, 40°F(ADJUSTABLE.)
11. WHEN EXHAUST SWITCH IS IN HAND POSITION, EXHAUST FAN SHALL OPERATE CONTINUOUSLY.
12. WHEN EXHAUST SWITCH IS IN OFF POSITION, EXHAUST FAN SHALL BE DE-ENERGIZED.

4 FUEL TANK SCHEMATIC DIAGRAM

SCALE: N.T.S.

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STAMP 12/10/2021

SHEET TITLE: **MECHANICAL DETAILS & DIAGRAM**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

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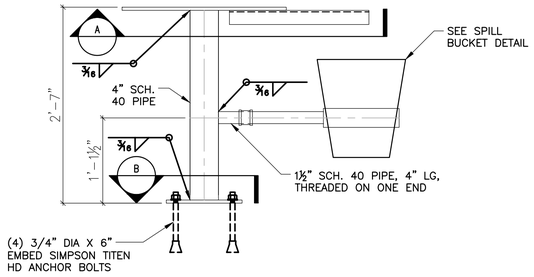
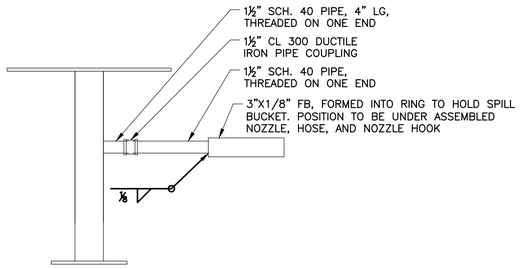
SHEET M5.2



NOTE: PAINT STEEL FABRICATIONS PER SPECIFICATIONS.

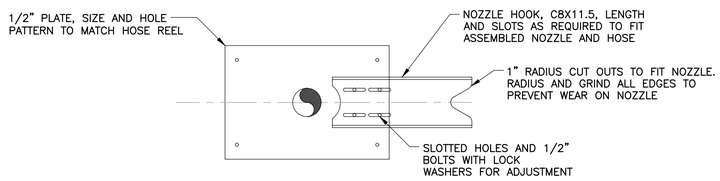
1 HOSE REEL BASE DETAIL

SCALE: 1" = 1'-0"



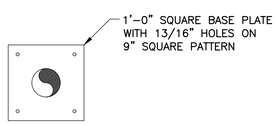
2 NOZZLE SPILL BUCKET DETAIL

SCALE: 1" = 1'-0"



3 SECTION - A

SCALE: 1" = 1'-0"



4 SECTION - B

SCALE: 1" = 1'-0"

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STAMP 12/10/2021

SHEET TITLE
MECHANINCAL DETAILS

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

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SHEET M5.3

ABBREVIATIONS

LETTER	NAME
Ø	PHASE
A	ABOVE COUNTER / AMPERE
AFF	ABOVE FINISHED FLOOR
BFC	BELOW FINISHED CEILING
AL	ALUMINUM
AMP	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
B	BELOW COUNTER
BLDG	BUILDING
BOD	BOTTOM OF DEVICE
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLK	CLOCK
COD	CENTER OF DEVICE
CO	CONDUIT ONLY
COMM	COMMUNICATIONS
CT	CURRENT TRANSFORMER
CU	COPPER
DIA	DIAMETER
DISC	DISCONNECT
DN	DOWN
DW	DISHWASHER
E	EXISTING TO REMAIN
EA	EACH
EGC	EQUIPMENT GROUNDING CONDUCTOR
ELEC	ELECTRIC
ELEV	ELEVATION
EMT	ELECTRICAL METALLIC CONDUIT
ENCL	ENCLOSURE
EQPM	EQUIPMENT
ER	EXISTING TO BE REMOVED
EXP	EXPLOSION PROOF
EXST	EXISTING
FA	FIRE ALARM
FDR	FEEDER
FLA	FULL LOAD AMPERES
FO	FIBER OPTIC
G	GROUND FAULT CIRCUIT INTERRUPT/GROUND
GALV	GALVANIZED
GEN	GENERATOR
GFP	GROUND FAULT PROTECTION
GND	GROUND
HH	HANDHOLE
HP	HORSEPOWER
HZ	HERTZ (CYCLES PER SECOND)
IC	INTERRUPTING CAPACITY
IG	ISOLATED GROUND
IN	INCH / INCHES
JBOX	JUNCTION BOX
KV	KILO-VOLT-AMPERE
KW	KILOWATT
KWH	KILOWATT-HOUR
LC	LIGHTING CONTROL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MH	MANHOLE
MIN	MINIMUM
MTD	MOUNTED
MW	MICROWAVE
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL EQUIP. MANUFACTURER'S ASSOC.
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OL	OVERLOAD
PB	PULL BOX
PKG	PACKAGE
PNL	PANEL
PR	PAIR
PWR	POWER
R	EXISTING TO BE RELOCATED
RCPT	RECEPTACLE
REF	REFRIGERATOR
REV	REVISION
RM	ROOM
SHT	SHEET
SIM	SIMILAR
SPD	SURGE PROTECTIVE DEVICE
SPKR	SPEAKER
STBY	STANDBY
STD	STANDARD
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYS	SYSTEM
TBB	TELEPHONE BONDING BACKBONE
TC	TIME CLOCK
TEL	TELEPHONE
THRU	THROUGH
TOD	TOP OF DEVICE

ABBREVIATIONS

LETTER	NAME
TGB	TELECOMMUNICATIONS GROUND BAR
TMGB	TELECOMMUNICATIONS MAIN GROUND BAR
TV	TELEVISION
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UPS	UNINTERRUPTIBLE POWER SUPPLY
VFY	VERIFY
VFD	VARIABLE FREQUENCY DRIVE
VR	VANDAL RESISTANT
WP	WEATHERPROOF
XFMR	TRANSFORMER
Z	IMPEDANCE

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	GENERAL
#	SHEET NOTE
	RACEWAY CONCEALED IN WALL/CEILING
	RACEWAY CONCEALED IN/BELOW FLOOR
	RACEWAY FOR EMERGENCY LIGHTING
	CABLE TRAY
	CONDUIT UP,VERTICAL TRANSITION
	CONDUIT DOWN,VERTICAL TRANSITION
	CONDUIT CAPPED
	CONDUIT HAZARDOUS AREA SEAL
	FLEXIBLE CONDUIT
X:#	HOME RUN X = PANELBOARD # =BRANCH CIRCUIT NUMBER(S)
	JUNCTION BOX
	SURFACE RACEWAY (DEVICES SHOWN)
	FLUSH FLOOR BOX (DEVICES SHOWN)
	POKE-THRU FITTING (DEVICES SHOWN)
	POWER POLE
V	VAULT
PB	PULLBOX
	ONE-LINE DIAGRAM
	TRANSFORMER
	DELTA
	WYE
	OPEN DELTA
	CURRENT TRANSFORMER
	RESISTOR
	CAPACITOR
	NORMALLY OPEN CONTACTOR
	NORMALLY CLOSED CONTACTOR
30A/3P	CIRCUIT BREAKER NUMBER INDICATES TRIP AND POLES
30A/3P	DISCONNECT SWITCH
30A	FUSE WITH RATING
30A	FUSED DISCONNECT WITH RATING

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	MOTOR THERMAL OVERLOADS
	SEPARABLE CONNECTOR
	GROUND CONNECTION
GFI	GROUND PROTECTION RELAY
ST	SHUNT TRIP
	AUTOMATIC TRANSFER SWITCH
M	POWER METER
R	RELAY
VFD	VARIABLE FREQUENCY DRIVE
X	FEEDER CALLOUT

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	LIGHTING
ID x	LUMINAIRE: ID = FIXTURE TYPE x = SWITCH ASSOCIATION
	2'x4' RECESSED FLUORESCENT FIXTURE
	2'x4' RECESSED FLUORESCENT FIXTURE, EMERGENCY
	2'x4' SURFACE-MTD FLUORESCENT FIXTURE
	2'x4' SURFACE MTD FLUORESCENT FIXTURE, EMERGENCY
	1'x4' RECESSED FLUORESCENT FIXTURE
	1'x4' RECESSED FLUORESCENT FIXTURE, EMERGENCY
	1'X4' SURFACE MTD FLUORESCENT FIXTURE
	1'X4' SURFACE MTD FLUORESCENT FIXTURE, EMERGENCY
	PENDANT-MTD/SUSPENDED FIXTURE
	PENDANT-MTD/SUSPENDED FIXTURE, EMERGENCY
	WALL-MTD FLUORESCENT FIXTURE
	WALL-MTD FLUORESCENT FIXTURE, EMERGENCY
	STRIP FLUORESCENT LIGHTING FIXTURE
	STRIP FLUORESCENT LIGHTING FIXTURE, EMERGENCY
	CEILING-MTD DIRECTIONAL FIXTURE
	CEILING-MTD FIXTURE
	CEILING-MTD FIXTURE, EMERGENCY
	TRACK LIGHT WITH NUMBER OF HEADS SHOWN
	WALL-MTD FIXTURE
	WALL-MTD FIXTURE, EMERGENCY
	EXIT SIGN WITH ARROW INDICATING DIRECTION OF EGRESS
	WALL-MTD EXIT SIGN
	CEILING-MTD EXIT SIGN
	BATTERY POWERED EMERGENCY LIGHT
	BATTERY POWERED EMERGENCY LIGHT
	POLE-MTD FIXTURE - ARROW INDICATES AIM
	BOLLARD WITH LIGHT
	EXTERIOR LANDSCAPE FIXTURE

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
$x	WALL SWITCH: X = AS FOLLOWS: 3 - THREE-WAY 4 - FOUR-WAY D - DIMMER K - KEY-OPERATED LV - LOW-VOLTAGE LVM - LOW-VOLTAGE MASTER M - MOTOR STARTER WITH OVERLOADS MC - MOMENTARY CONTACT O - OCCUPANCY SENSOR P - PILOT LIGHT WP- WEATHERPROOF a - LOWER-CASE INDICATES SWITCHING CNTRL
$	SINGLE-POLE WALL SWITCH
PC	PHOTOCELL CONTROL
OS	OCCUPANCY SENSOR
TC	TIME CLOCK LIGHTING
	CONTROL PANEL
	LIGHT FIXTURE IN DAYLIGHT ZONE (WITHIN 15' OF WINDOW)
R XXX:X	LIGHTING CONTROL PANEL RELAY CALLOUT

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	POWER
X	RECEPTACLE OUTLET: X = AS FOLLOWS: C - CLOCK HANGER EP - EXPLOSION PROOF G - GROUND FAULT CIRCUIT INTERRUPT S - SAFETY TYPE T - TIMER CONTROLLED WP- WEATHERPROOF
	SINGLE RECEPTACLE, 125V, 20A
	DUPLEX RECEPTACLE, 125V, 20A
	DOUBLE-DUPLEX RECEPT, 125V, 20A
	FILTERED RED DUPLEX RECEPTACLE, 125V, 20A
	FILTERED RED DOUBLE-DUPLEX RECEPT, 125V, 20A
	ISOLATED GROUND DOUBLE-DUPLEX RECEPT W/SURGE PROTECTION, 125V, 20A
	ISOLATED GROUND DOUBLE-DUPLEX RECEPT W/SURGE PROTECTION,125V, 20A
	CEILING-MTD SINGLE RECEPTACLE, 125V, 20A
	CEILING-MTD DUPLEX RECEPTACLE, 125V, 20A
	CEILING-MTD DOUBLE-DUPLEX RECEPTACLE, 125V, 20A
	FILTERED CEILING-MTD RED DUPLEX RECEPT, 125V, 20A
	FILTERED CEILING-MTD RED DOUBLE-DUPLEX RECEPT, 125V, 20A
	ISOLATED GROUND CEILING-MTD DUPLEX RECEPT W/SURGE PROTECTION, 125V, 20A
	ISOLATED GROUND CEILING-MTD DOUBLE-DUPLEX RECEPT W/SURGE PROTECTION, 125V, 20A
X	SPECIAL PURPOSE RECEPTACLE X = TYPE
M	MOTOR CONNECTION SEE SCHEDULE FOR MOTOR DATA
	EQUIPMENT CONNECTION
	DISCONNECT SWITCH
	STARTER
	COMBINATION STARTER
	FLUSH MOUNTED PANELBOARD

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	SURFACE MOUNTED PANELBOARD
	480V PANELBOARD
	208V OR 240V PANELBOARD
T	TRANSFORMER
R	RELAY
HH	HANDHOLE
XXXX	MECHANICAL EQUIPMENT CALLOUT

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	COMMUNICATION
	DATA/TEL OUTLET
X	TELEPHONE OUTLET W = WALL PHONE
X	DATA OUTLET, 4-PORTS
	WIRELESS ACCESS POINT
P	CEILING MOUNTED PROJECTOR
TV	T.V. JACK
DVD	DVD STATION
PS	PRESENTATION STATION
	ANTENNA
TE	TELECOMMUNICATION ENCLOSURE (LBB)
	SECURITY
	MAGNETIC DOOR CONTACTS
	DOOR CONTACT
CR	CARD READER
K	KEYPAD
MR	SECURITY MONITOR
CAM	CCTV SECURITY VIDEO CAMERA
MD	PASSIVE INFRARED MOTION DETECTOR
S	CEILING MOUNTED SECURITY ALERT STROBE
S	WALL MOUNTED SECURITY ALERT STROBE
S	SECURITY ALERT SIREN
	PTZ CC CAMERA IN HEATED DOME
	AUX SYSTEMS
S	SPEAKER VR- VANDAL RESISTANT
S	WALL-MOUNTED SPEAKER
	CLOCK
OR	PUSH BUTTON

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	FIRE ALARM
	SMOKE DETECTOR
	COMBINATION SMOKE/CARBON MONOXIDE DETECTOR
	CARBON MONOXIDE DETECTOR
	HEAT DETECTOR
	DUCT TYPE SMOKE DETECTOR
T	SMOKE BEAM TRANSMITTER
R	SMOKE BEAM RECEIVER
F	FIRE ALARM MANUAL PULL STATION
	FIRE SMOKE DAMPER
	FIRE ALARM WALL-MOUNTED STROBE
	FIRE ALARM CEILING-MOUNTED STROBE
	FIRE ALARM WALL-MOUNTED SPEAKER
	FIRE ALARM CEILING-MOUNTED SPEAKER
	FIRE ALARM WALL-MTD SPEAKER STROBE
	FIRE ALARM CEILING-MOUNTED SPEAKER STROBE
	FIRE ALARM WALL-MOUNTED BELL
	FIRE ALARM WALL-MOUNTED BELL STROBE
DH	MAGNETIC DOOR HOLDER
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FS	SPRINKLER FLOW SWITCH
TS	SPRINKLER TAMPER SWITCH
PS	SPRINKLER PRESSURE
PIV	SWITCH POST INDICATOR VALVE
R	ADDRESSABLE RELAY INTERFACE
	POST INDICATOR VALVE

SHEET INDEX

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10 N. Post Street, Suite 500
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ph 509.328.2994
www.coffman.com

JOSEPH C. KORUS STATE OF WASHINGTON 38425 REGISTERED PROFESSIONAL ENGINEER
12.10.21
STAMP

SHEET TITLE: **LEGEND AND SHEET INDEX**

PROJECT NAME & ADDRESS: **FUELING FACILITY**
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION:
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

REVISIONS

No.	Date	By

PROJ. NO. 2021-10628
DRAWN LLK
CHECKED JCK
DATE 12/10/2021

BID SET

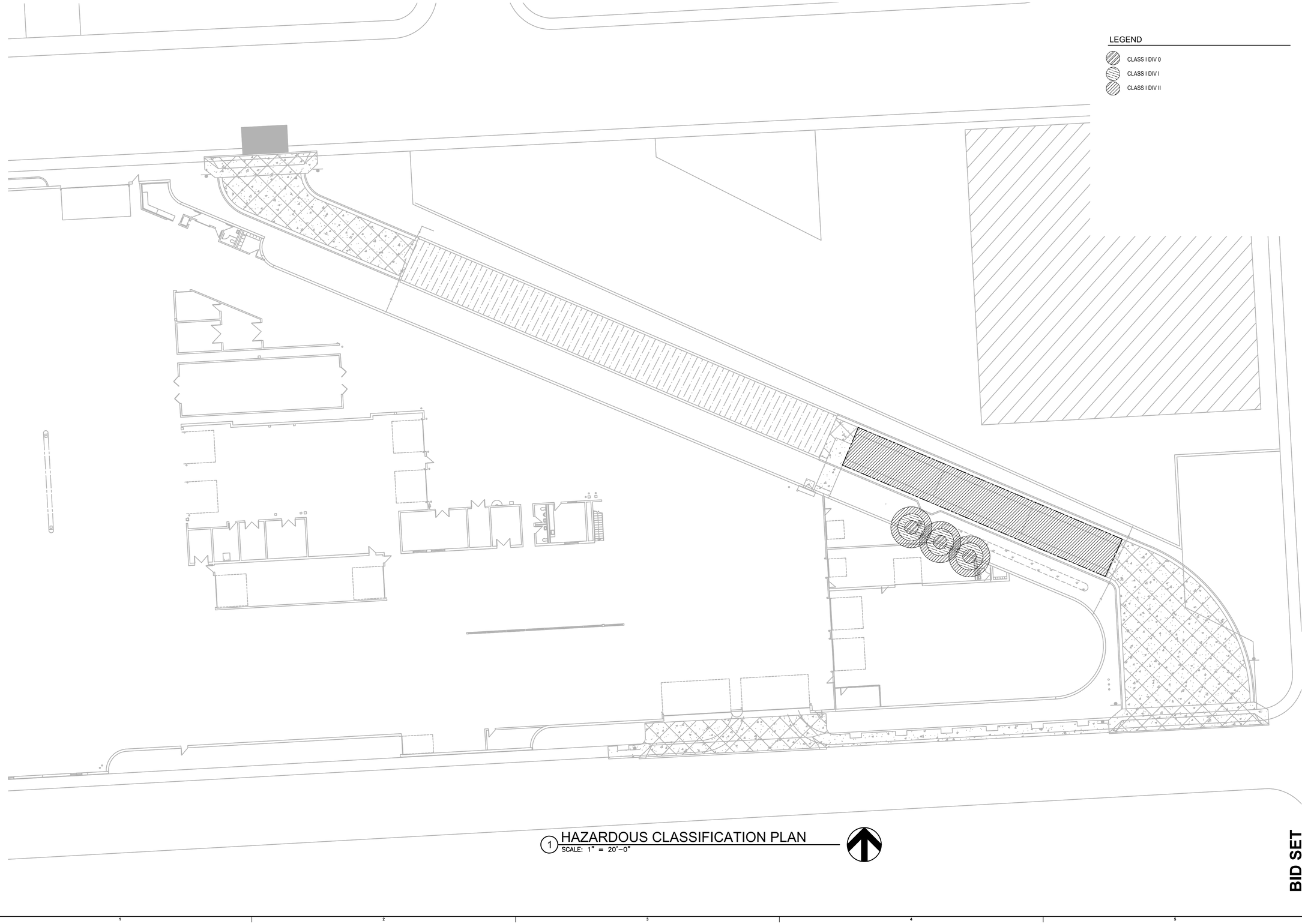
SHEET: E0.1

SHEET NOTES

1. NOT USED.

LEGEND

- CLASS I DIV 0
- CLASS I DIV I
- CLASS I DIV II



1 HAZARDOUS CLASSIFICATION PLAN
SCALE: 1" = 20'-0"

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12.10.21

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SHEET TITLE
HAZARDOUS CLASSIFICATION PLAN

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
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REVISIONS

No.	Date	By

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PROJ. NO.	2021-10628
DRAWN	LLK
CHECKED	JCK
DATE	12/10/2021

SHEET
E1.0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE CURRENT EDITION OF THE NEC AS ADOPTED BY THE STATE OF WASHINGTON OR THE LOCAL AUTHORITY HAVING JURISDICTION.
2. SEAL ALL CONDUITS AS THEY LEAVE THE CLASSIFIED AREA.
3. ALL W.A2 ARE TO BE CIRCUITED TO EF2 AND WILL BE CONTROLLED VIA INTEGRATED PHOTOCELL.
4. GAS DETECTORS SHALL BE MOUNTED SO THAT THEY DO NOT INTERFERE WITH LID REMOVAL.

1

5. SEE SECTION 002100 PART 1.1B AND SECTION 003100 AS RELATED TO SCHEDULE AND PHASING OF THE WORK. WORK INDOORS MUST BE COORDINATED WITH STA AND MUST NOT DISRUPT EXISTING BUS WASHING AND FUELING OPERATIONS.
6. WIRING AND CONDUIT ROUTING IS SHOWN AS A BASIS OF DESIGN ONLY. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE WORKING SYSTEM FOR THE SECURITY, CAMERAS, ELECTRICAL DEVICES, TANKS, FUEL, PUMPS, AND FUEL CONTROLLERS. MORE CONDUIT AND WIRE MAYBE REQUIRED THAN IS SHOWN.

SHEET NOTES

1. NOT USED
2. PANELS EF1 AND EF2 ARE ON EMERGENCY GENERATOR BACKUP.
3. NOT USED.
4. NOT USED.
5. NOT USED.
6. NOT USED.
7. NOT USED.
8. NOT USED.
9. NOT USED.
10. CONTRACTOR SHALL COORDINATE OVERHEAD OR ENCASED CONDUIT TO EXISTING PANELS WITH OTHER DISCIPLINES. COORDINATE INSTALLATION WITH EXISTING INFRASTRUCTURE.
11. DURING DEMOLITION OF EXISTING DISPENSERS AND INSTALLATION OF NEW DISPENSERS, LOCATE EXISTING CONDUIT AND COORDINATE DEMOLITION OR RELOCATION WITH OWNER. DEMOLITION OF EXISTING SYSTEM SHALL BE PHASED SO THAT FUEL DELIVERY IS NOT DISRUPTED.
12. COORDINATE EXACT PLACEMENT OF ALL CAMERAS WITH STA.
13. W.A2 FIXTURES ARE TO BE LUMCA P/N #LU-BWM-18-LED05-30W-40K-L2B-120-BK. BLACK FINISH WITH (BTP) BUTTON TYPE PHOTOCELL. MOUNT AT 12'-0" UNLESS NOTED OTHERWISE. COORDINATE WITH STA PRIOR TO INSTALLATION.
14. GAS DETECTOR SHALL BE MOUNTED SO THAT IT DOES NOT INTERFERE WITH LID REMOVAL.

BOONE AVENUE

12
13 CAM
W.A2

13 W.A2

12
SDM
W.A2 13

(2) -1" RGS CONDUITS ONE FOR CAMERAS AND ONE FOR SECURITY

CONTINUED ON SHEET E4.1

CONTINUED ON SHEET E4.1

CONTINUED ON SHEET E4.1

TO UPHOLSTERY SHOP

1" RGS CONDUIT

TO PUMP CONTROLLERS

1&3 E4.1

1-1/2" RGS CONDUIT

DISPENSING STATION

DISPENSING STATION

11

1" RGS CONDUIT

TO PANEL EF2

EMERGENCY SHUT-OFF

EXISTING LEAK DETECTION

EXISTING OVERFILL

PANEL EF2
PANEL EF1

2 10

EXISTING STA SIGN

REMOVE EXISTING SIGN WIRING BACK TO INTERIOR J-BOX.

(E) UNDERGROUND

NEW SIGN LIGHTING. FEED FROM EXISTING CIRCUIT.

1 ELECTRICAL SITE PLAN
SCALE: 1" = 20'-0"

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SHEET TITLE
ELECTRICAL SITE PLAN

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

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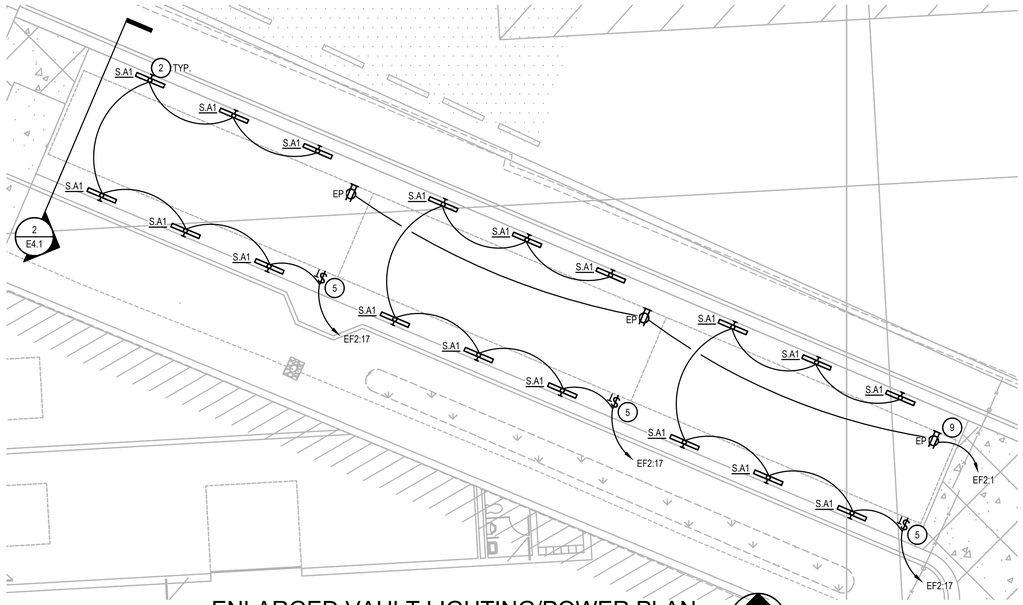
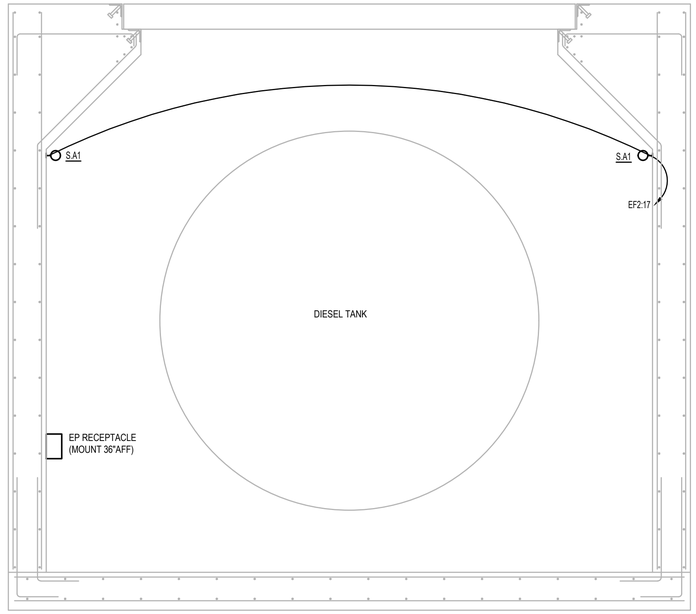
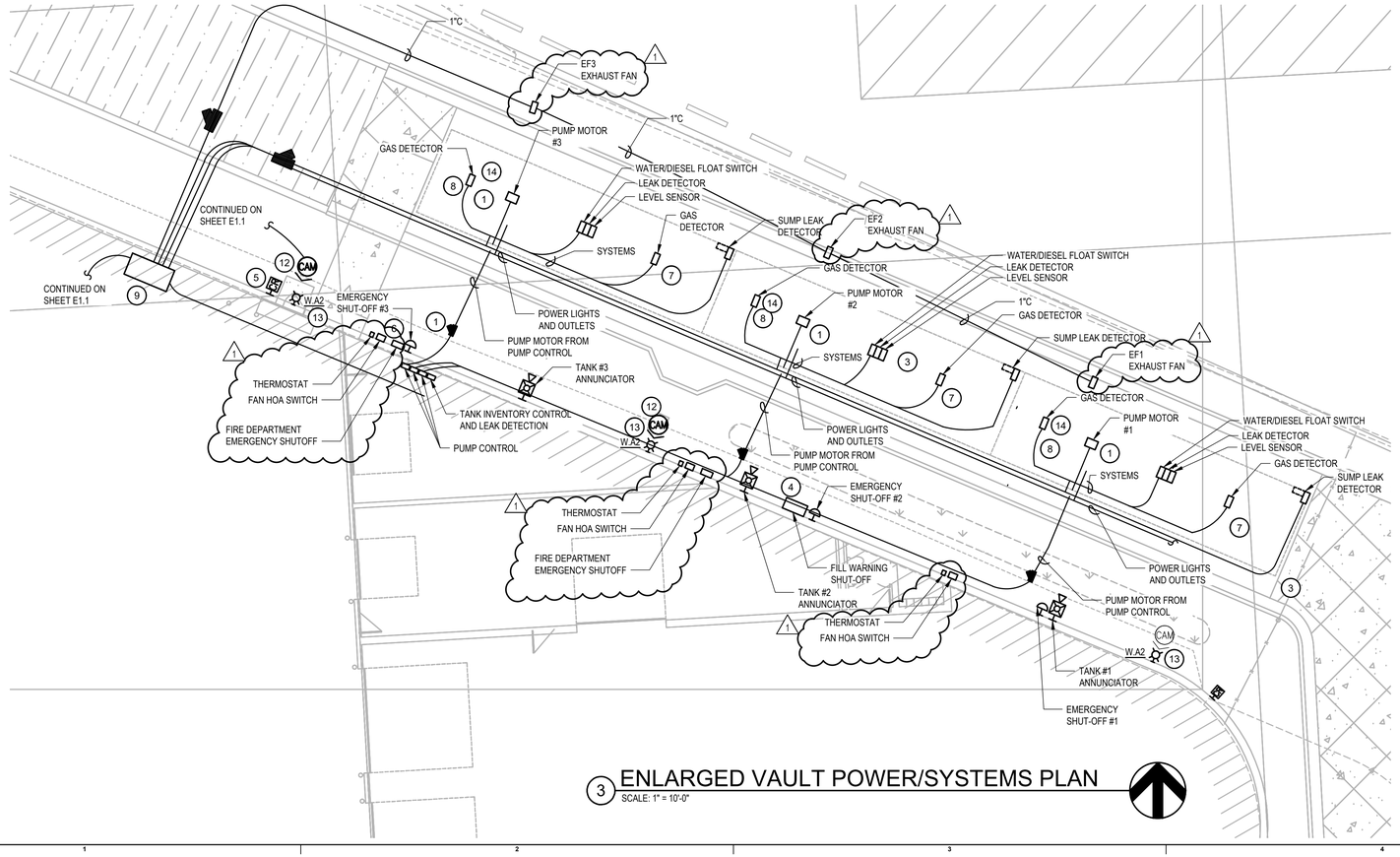
SHEET
E1.1



1 ENLARGED VAULT LIGHTING/POWER PLAN
SCALE: 1" = 10'-0"



2 VAULT LIGHTING ELEVATION
SCALE: 1/2" = 1'-0"



3 ENLARGED VAULT POWER/SYSTEMS PLAN
SCALE: 1" = 10'-0"

SHEET NOTES

1. NEW DIESEL PUMPS TO BE SINGLE PHASE, 240VAC.
2. PROVIDE S.A1 INDATECH EXPLOSION PROOF LED LUMINAIRE CAT#HXPFL4-90-U-50K. CIRCUIT TO BE SPLIT AT SWITCHES.
3. SEE SHEET E4.1 FOR ENLARGED LIGHTING DETAILS.
4. TANK FILL WARNING INDICATORS SHALL BE SHUT OFF MANUALLY AT STATION SHOWN. WARNING SILENCE SHALL LATCH AND AUTOMATICALLY RESET WHEN ALARM LEVEL DROPS TO NORMAL.
5. PROVIDE A SENSOR SWITCH PTS-60-GY-LT TIMER SWITCH IN A WEATHERPROOF ENCLOSURE TO CONTROL THE S.A1 LUMINAIRES LOCATED BELOW GRADE IN THE STORAGE TANK ROOMS.
6. COORDINATE LOCATION OF FIRE DEPARTMENT E-STOP WITH MECHANICAL INSTALLATION; SEE SHEET M1.3 AND CIVIL C2.1.
7. EACH VAULT TO BE EQUIPPED WITH INDIVIDUAL LIGHT CONTROL AND A RECEPTACLE FOR PORTABLE SUMP PUMP; SEE SHEET E4.1 FOR DETAILS.
8. FOR SENSOR DETAILS, SEE SHEET E5.1.
9. RECEPTACLES FOR USE WITH PORTABLE SUMP PUMP.
10. NOT USED.
11. NOT USED.
12. COORDINATE EXACT PLACEMENT OF ALL CAMERAS WITH STA.
13. W.A2 FIXTURES ARE TO BE LUMCA P/N #LU-BWM-19-LED05-30W-40K-I-2B-120-BK. BLACK FINISH WITH (BTP) BUTTON TYPE PHOTOCELL. MOUNT AT 12'-0" UNLESS NOTED OTHERWISE. COORDINATE WITH STA PRIOR TO INSTALLATION.
14. GAS DETECTOR SHALL BE MOUNTED SO THAT IT DOES NOT INTERFERE WITH LID REMOVAL.

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE CURRENT EDITION OF THE NEC AS ADOPTED BY THE STATE OF WASHINGTON OR THE LOCAL AUTHORITY HAVING JURISDICTION.
2. SEAL ALL CONDUITS AS THEY LEAVE THE CLASSIFIED AREA. SEAL OFF LOCATION IS DIAGRAMMATIC. SEAL OFFS WILL BE IN BUILDING OR ON BUILDING WALL.
3. ALL W.A2 ARE TO BE CIRCUITED TO EF2 AND WILL BE CONTROLLED VIA INTEGRATED PHOTOCELL.
4. GAS DETECTORS SHALL BE MOUNTED SO THAT THEY DO NOT INTERFERE WITH LID REMOVAL.
5. CONDUIT PENETRATIONS SHALL USE DETAIL S5.1/5. PROVIDE THREE CONDUITS ONE FOR POWER, ONE FOR SYSTEMS, AND ONE FOR THE PUMP MOTOR.

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SHEET TITLE
ENLARGED ELECTRICAL PLANS

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

Spokane Transit Authority
1230 W. Boone Avenue, Spokane, Washington 99201

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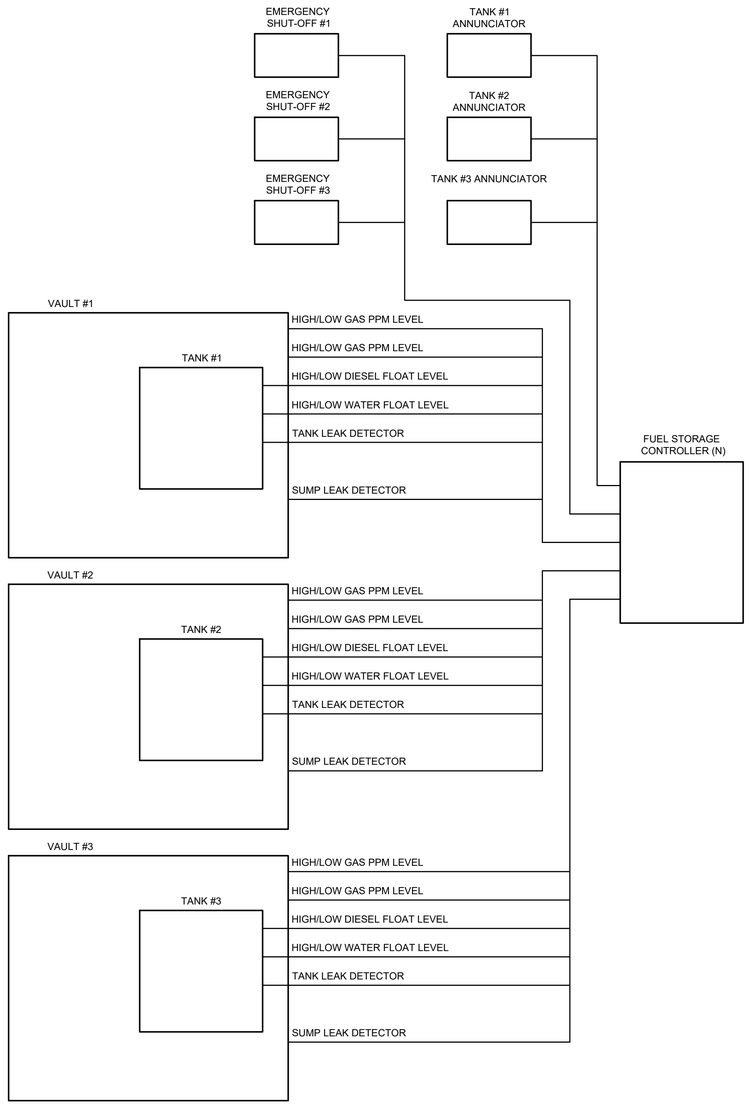
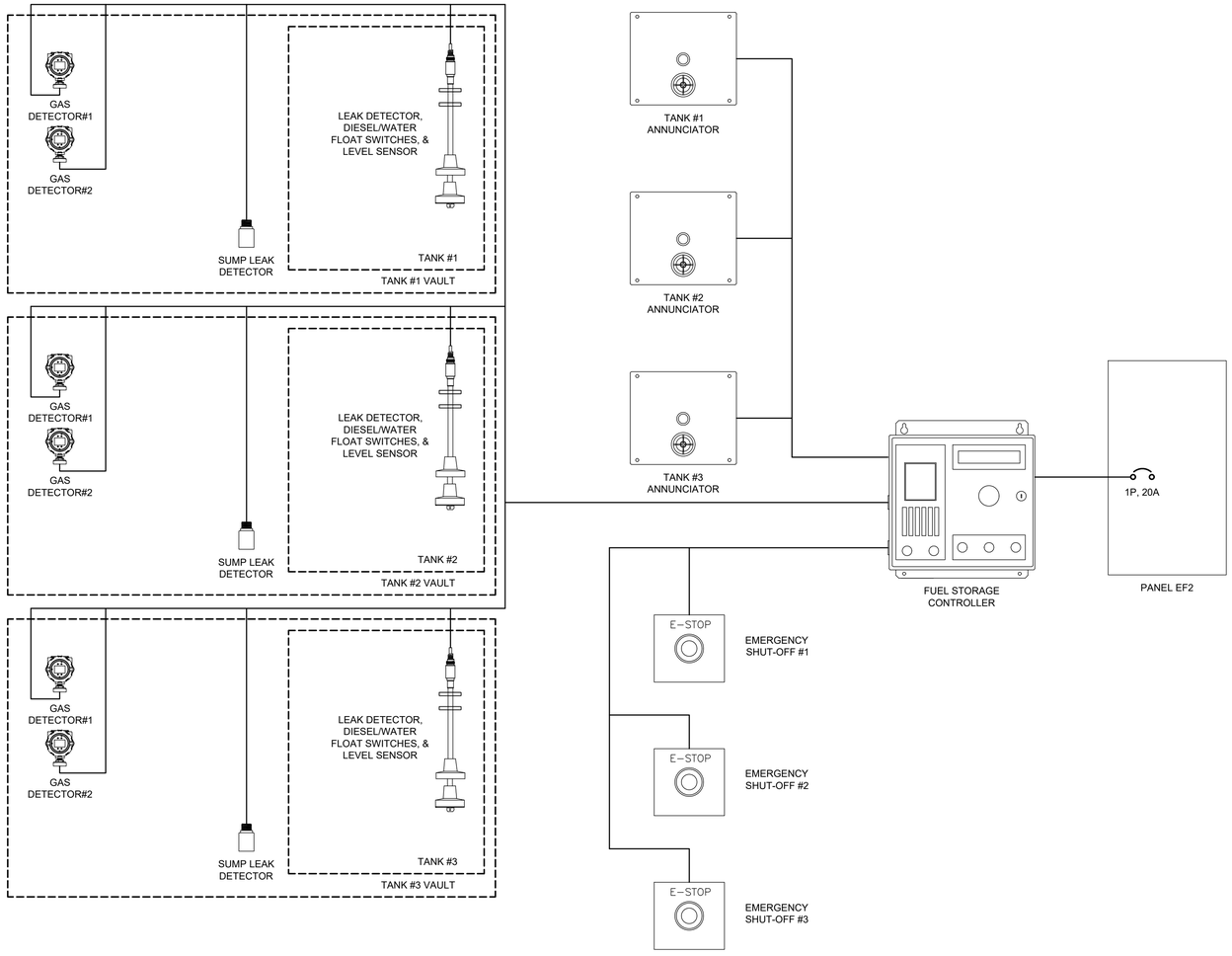
CHECKED	JDG
DATE	12/10/2021

SHEET
E4.1



1 TANK INSTRUMENT DIAGRAM
SCALE: NTS



2 SYSTEM CONTROL AND SIGNALING SCHEMATIC
SCALE: NTS

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12.10.21

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SHEET TITLE
ELECTRICAL DETAILS

PROJECT NAME & ADDRESS
FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
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SHEET
E5.1

Project	3-PHASE PANEL SCHEDULE	PANEL:	EF1
Location:	Feed-Thru to:		Date: 12/8/2021

Ckt	Description	Phase	Amp	Poles	Notes	Ckt Totals
1	EMERGENCY LTG/FUEL N ISL EXIT	A	20	1		1.5
3	EMERGENCY LTG S	B	20	1		1.5
5	EMERGENCY LTG N	C	20	1		1.5
7	EXT LTG DOOR 1 & 2	A	20	1		1.5
9	SPARE	B	20	1		
11	STA SIGN EAST END	C	20	1		1.0
13	PANEL EF2 (VIA XFMR)	A	30	3		5.0
15	-	B	-	-		3.6
17	-	C	-	-		5.9
19	SPACE	A				
21	SPACE	B				
23	SPACE	C				
2	DOOR 1 THRU 6	A	30	3		0.2
4	-	B	-	-		0.2
6	-	C	-	-		0.2
8	SPARE	A	20	1		
10	SPARE	B	20	1		
12	SPARE	C	20	1		
14	MAIN FEED FROM PANEL EA1	A	60	3		
16	-	B	-	-		
18	-	C	-	-		
20	SPARE	A	100	3		
22	-	B	-	-		
24	-	C	-	-		

Specifications	
Overcurrent Rating (Amps):	60
Voltage (L-L):	480
Phase:	3
Wire:	4
Bus Current Rating (Amps):	200
Bus Material:	Cu/Al
Short Circuit Current Rating (Amps)	22KA
Main Type:	BRKR
Neutral Type:	FULL
Mounting/Encl.:	

2008 NEC Sections Used in Demand Calculations

Factor #	NEC Reference	Notes
1	TBL 220.44 Receptacles ND	1st 10k @100%, Remainder @50%
2	TBL 220.42 Apartments General Lighting	1st 20k@50%, 20-100k @40%, >100k @30%
3	430.24 Motors	Largest @125% Remainder @100%
4	210.19(A)1 Cont Loads	125%
5	Non-Cont Loads	100%
6	220.51 Heating	100%

Feeder Load Breakdown	Conn(KVA)	Dmd Fact
Non-Dwelling Receptacles	11.19	0.95
Dwelling General Illumination	0.00	0.00
Non-Continuous Lighting	0.00	1.00
Continuous Lighting	0.00	1.25
Exterior Lighting	3.00	1.25
Kitchen Appliances	0.00	1.00
Motors	3.88	1.00
Largest Motor (per phase)	1.28	0.25
Fixed Heating	0.00	1.00
Fixed Cooling	0.00	1.00
Non-Diversity Loads	0.00	1.00
Other	0.00	1.00

Connected Feeder Load Summary

	CONN KVA	CONN AMPS	NEC KVA	NEC AMPS
PHASE A:	8.20	29.59	9.06	32.68
PHASE B:	5.29	19.09	5.85	21.10
PHASE C:	8.58	30.96	9.28	33.49
TOTAL:	22.07	26.55	24.19	29.09

Notes: 1. LOADS ESTIMATED.

Panel Loading: ACCEPTABLE

Project	3-PHASE PANEL SCHEDULE	PANEL:	EF2
Location:	Feed-Thru to:		Date: 12/8/2021

Ckt	Description	Phase	Amp	Poles	Notes	Ckt Totals
1	SUMP PUMP RECEPT	A	20	1	3,4	0.4
3	CO CONTROL PANEL #2	B	20	1		0.5
5	CO CONTROL PANEL #3	C	20	1		0.5
7	21 IDS DIESEL SYSTEM	A	20	1		1.5
9	AUTO-LTG CONTROL	B	20	1		0.5
11	AUTO-LTG CONTROL #2	C	20	1		0.5
13	HEAD BOLT HEATER, E GEN.	A	20	1		1.5
15	BATTERY CHARGER, E GEN.	B	20	1		0.7
17	VAULT LIGHTS	C	20	1	3	1.7
19	CCTV OUTDOOR	A	20			0.2
21	CCTV OUTDOOR	B	20	1		0.2
23	DOOR CONTROL I/O #3	C	20	1		0.2
25	WI-FI BUS STORAGE	A	20	1		0.2
27	OUTSIDE LIGHTING	B	20	1		0.1
29	VAULT EXHAUST FANS	C	20	1		0.3
31		A				
33		B				
35		C				
37		A				
39		B				
41		C				
2	DIESEL PUMP #1	A	20	2	1	0.5
4	-	B	-	-		0.5
6	DIESEL PUMP #2	C	20	2	1	0.5
8	-	A	-	-		0.5
10	DIESEL PUMP #3	B	20	2	1	0.5
12	-	C	-	-		0.5
14	CORAY VAC #10	A	20	1		0.2
16	CORAY VAC #6	B	20	1		0.2
18	CORAY VAC #5	C	20	1		0.2
20	WI-FI EAST END	A	20	1		0.2
22	FUEL CONTROLLER	B	20	1		0.4
24	FUEL DISPENSERS	C	30			1.5
26	MAIN BREAKER	A	70	3	2	
28	-	B	-	-		
30	-	C	-	-		
32		A				
34		B				
36		C				
38		A				
40		B				
42		C				

Specifications	
Overcurrent Rating (Amps):	50
Voltage (L-L):	208
Phase:	3
Wire:	4
Bus Current Rating (Amps):	400
Bus Material:	Cu/Al
Short Circuit Current Rating (Amps)	22KA
Main Type:	BRKR
Neutral Type:	FULL
Mounting/Encl.:	

2008 NEC Sections Used in Demand Calculations

Factor #	NEC Reference	Notes
1	TBL 220.44 Receptacles ND	1st 10k @100%, Remainder @50%
2	TBL 220.42 Apartments General Lighting	1st 20k@50%, 20-100k @40%, >100k @30%
3	430.24 Motors	Largest @125% Remainder @100%
4	210.19(A)1 Cont Loads	125%
5	Non-Cont Loads	100%
6	220.51 Heating	100%

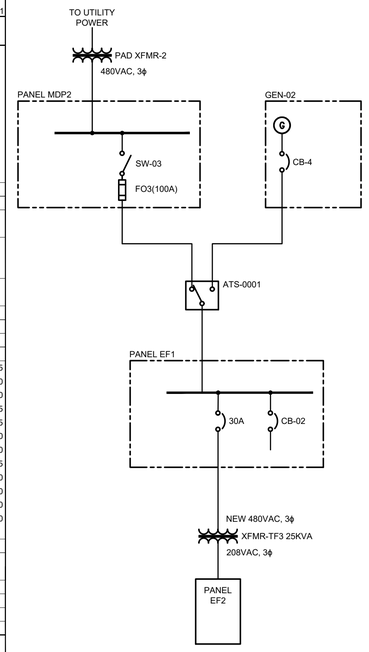
Feeder Load Breakdown	Conn(KVA)	Dmd Fact
Non-Dwelling Receptacles	11.19	0.95
Dwelling General Illumination	0.00	0.00
Non-Continuous Lighting	0.00	1.00
Continuous Lighting	0.00	1.25
Exterior Lighting	0.00	1.25
Kitchen Appliances	0.00	1.00
Motors	3.28	1.00
Largest Motor (per phase)	0.50	0.25
Fixed Heating	0.00	1.00
Fixed Cooling	0.00	1.00
Non-Diversity Loads	0.00	1.00
Other	0.00	1.00

Connected Feeder Load Summary

	CONN KVA	CONN AMPS	NEC KVA	NEC AMPS
PHASE A:	5.00	41.64	4.91	40.91
PHASE B:	3.59	29.89	3.58	29.79
PHASE C:	5.88	48.96	5.76	47.97
TOTAL:	14.47	40.16	14.25	39.55

Notes:
1. BREAKER RE-USED TO FEED NEW DIESEL PUMPS.
2. NEW 70AMP MAIN BREAKER.
3. USE EXISTING BREAKER FOR NEW CIRCUIT.
4. DEDICATED GFCI CIRCUIT BKR FOR RECEPTACLES SERVING PORTABLE SUMP PUMP.
5. LOADS ESTIMATED.

Panel Loading: ACCEPTABLE



1 ELECTRICAL ONE-LINE DIAGRAM
SCALE: NTS

MECHANICAL EQUIPMENT SCHEDULE

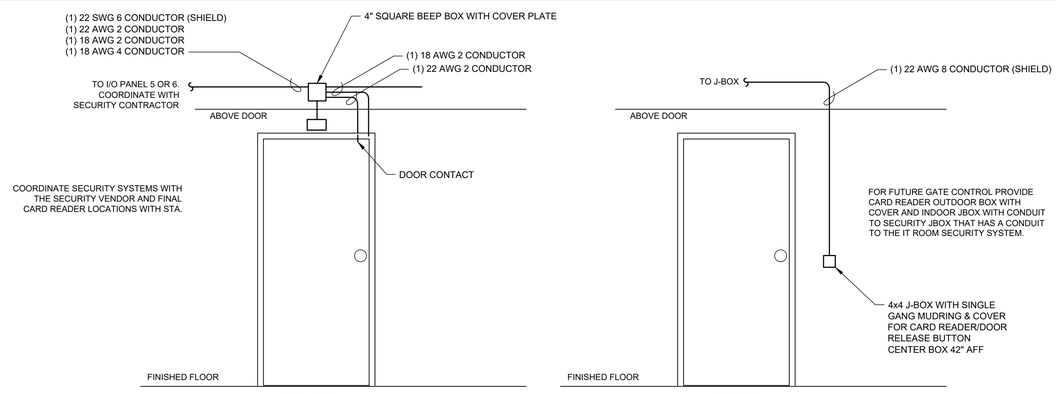
Project No:202022

Notes:
A. FURNISHED AND INSTALLED BY DIVISION 23
B. FURNISHED BY DIVISION 23, INSTALLED BY DIVISION 26
C. FURNISHED AND INSTALLED BY DIVISION 26
D. FURNISHED BY OTHERS, INSTALLED BY DIVISION 26
E. FURNISHED AND INSTALLED BY OTHERS

F. NEMA 5-15R RECEPTACLE
G. NEMA 5-20R RECEPTACLE
H. NEMA 6-20R RECEPTACLE
I. NEMA 5-50R RECEPTACLE
J. DIRECT CONNECTION

Key:
FLA - FULL LOAD AMPS
MCA - MINIMUM CIRCUIT AMPS
VFD - VARIABLE FREQUENCY DRIVE
HP- HORSE POWER

UNIT ID	DESCRIPTION	LOCATION	VOLTS	PHASE	HP	LOAD (KVA)	FLA	MCA	MOCP	EMER CKT	BREAKER POLE	BREAKER AMPS	UNIT DISCONNECT POLE	UNIT DISCONNECT AMPS	UNIT DISCONNECT FUSE	UNIT DISCONNECT NOTES	WIRES PHASE NO.	WIRES PHASE SZ	WIRES GND SZ	WIRES CONDUIT SIZE	STARTER COMBO	STARTER FVNR	STARTER SQFT	STARTER VFD	STARTER NOTES	SHORT CIRCUIT CURRENT (A)	CIRCUIT NUMBER	REMARKS
EF-1	EXHAUST FAN 1	VAULT 1	120	1	1/8		0.80		20		1	20	1	20			2	12	12	3/4							EF2:29	20 AMP MOTOR RATED SWITCH FOR DISCONNECT
EF-2	EXHAUST FAN 2	VAULT 2	120	1	1/8		0.80		20		1	20	1	20			2	12	12	3/4							EF2:29	20 AMP MOTOR RATED SWITCH FOR DISCONNECT
EF-3	EXHAUST FAN 3	VAULT 3	120	1	1/8		0.80		20		1	20	1	20			2	12	12	3/4							EF2:29	20 AMP MOTOR RATED SWITCH FOR DISCONNECT
DP-1	DIESEL PUMP1		208	1	2		7.00	20.00	20		2	20	3	30			3	10	10	1				Y	B		EF2:2,4	PUMP VFD SUPPLIED BY PUMP VENDOR
DP-2	DIESEL PUMP2		208	1	2		7.00	20.00	20		2	20	3	30			3	10	10	1				Y	B		EF2:6,8	PUMP VFD SUPPLIED BY PUMP VENDOR
DP-3	DIESEL PUMP3		208	1	2		7.00	20.00	20		2	20	3	30			3	10	10	1				Y	B		EF2:10,12	PUMP VFD SUPPLIED BY PUMP VENDOR



2 SINGLE DOOR OR GATE CARD READER IN/ REQUEST TO EXIT OUT AND ELECTRIC MORTISE EXIT LOCK
SCALE: NTS

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JOSEPH C. KORUS STATE OF WASHINGTON 38425 REGISTERED PROFESSIONAL ENGINEER
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SHEET TITLE: ONE LINE DIAGRAM

PROJECT NAME & ADDRESS: FUELING FACILITY
1229 W. Boone Avenue
Spokane, Washington

CLIENT INFORMATION
Spokane Transit Authority
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