Additional/Revised Material Submittal Form

Submittal Date: 9-28-2026

Rec'd by: _____

6015 Glenwood Street ▯ Garden City, Idaho 83714 ▯ Phone 208/472-2921 ▯ Fax 208/472-2926▯
building@gardencityidaho.org ▯ Inspection Hotline Phone 208/472-2920 ▯ www.gardencityidaho.org

PROJECT INFORMATION

Permit (File) Number: MLDFY2024-0001 **Design Professional in Charge:** Dave Evans and Assoc c/o Bryan Appleby PE

Project Name: Boise Bible College

Project Address: 8647, 8687 & 8695 W Marigold Street; Parcel #: S0525233602 **Garden City, Idaho, 837**14

Contact email: Bryan.Appleby@deainc.com **Contact Phone:** 208.484.3747

Contact email: John@rennisoncompanies.com **Contact Phone:** 208.870.2771

*****Applicant is responsible for notifying ACHD for any changes that affect design*****

Required number of additional or revised plans submitted (1 electronic copy is required as well):

- ☒ **Please only submit new or revised materials. Re-submitting materials that have not been revised will incur additional review fees.**
- ☒ Electronic copy – Grading or Civil Sheets(no building) Electronic copy – *only sheets with changes*
- ☒ Electronic Copies Only – Residential Building/Nonresidential Building – *individual sheets pdf and labeled*
- ☒ Electronic Copies - Design Review, Planning and Zoning, or City Council review documents

*****Provide the page/sheet number and description of what changes are made*****

****Additional sheet can be submitted also****

1. Project design revised to address City Council Public Hearing comments regarding the project Design Review.
2. _____
3. _____
4. _____
5. _____
6. _____

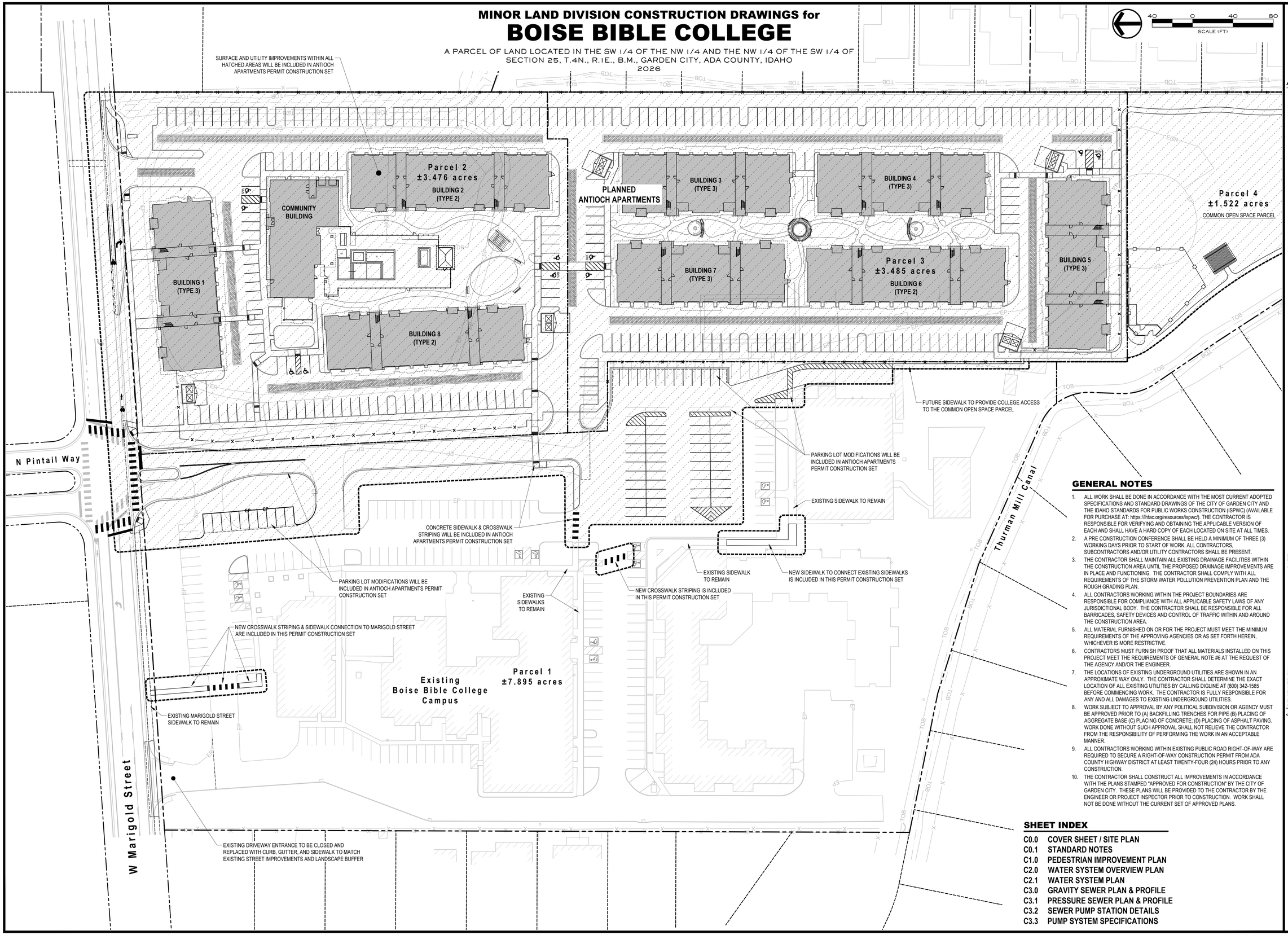
Who requested Change:

- ☐ **Building Reviewer – Idaho Division of Building Safety**
- ☐ **Engineer Reviewer**
- ☐ **Environmental Reviewer (erosion sediment/pretreatment)**
- ☐ **Fire Reviewer**
- ☐ **Planning Reviewer**
- ☐ **Sewer Reviewer**
- ☐ **Water Reviewer**
- ☒ **Other:** City Council

MINOR LAND DIVISION CONSTRUCTION DRAWINGS for
BOISE BIBLE COLLEGE

A PARCEL OF LAND LOCATED IN THE SW 1/4 OF THE NW 1/4 AND THE NW 1/4 OF THE SW 1/4 OF SECTION 25, T.4N., R.1E., B.M., GARDEN CITY, ADA COUNTY, IDAHO

2026



GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT ADOPTED SPECIFICATIONS AND STANDARD DRAWINGS OF THE CITY OF GARDEN CITY AND THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC) (AVAILABLE FOR PURCHASE AT: https://ithac.org/resources/ispwc/). THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND OBTAINING THE APPLICABLE VERSION OF EACH AND SHALL HAVE A HARD COPY OF EACH LOCATED ON SITE AT ALL TIMES.
2. A PRE CONSTRUCTION CONFERENCE SHALL BE HELD A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO START OF WORK. ALL CONTRACTORS, SUBCONTRACTORS AND/OR UTILITY CONTRACTORS SHALL BE PRESENT.
3. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE FACILITIES WITHIN THE CONSTRUCTION AREA UNTIL THE PROPOSED DRAINAGE IMPROVEMENTS ARE IN PLACE AND FUNCTIONING. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE ROUGH GRADING PLAN.
4. ALL CONTRACTORS WORKING WITHIN THE PROJECT BOUNDARIES ARE RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE SAFETY LAWS OF ANY JURISDICTIONAL BODY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BARRICADES, SAFETY DEVICES AND CONTROL OF TRAFFIC WITHIN AND AROUND THE CONSTRUCTION AREA.
5. ALL MATERIAL FURNISHED ON OR FOR THE PROJECT MUST MEET THE MINIMUM REQUIREMENTS OF THE APPROVING AGENCIES OR AS SET FORTH HEREIN, WHICHEVER IS MORE RESTRICTIVE.
6. CONTRACTORS MUST FURNISH PROOF THAT ALL MATERIALS INSTALLED ON THIS PROJECT MEET THE REQUIREMENTS OF GENERAL NOTE #6 AT THE REQUEST OF THE AGENCY AND/OR THE ENGINEER.
7. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BY CALLING DIGLINE AT (800) 342-1585 BEFORE COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING UNDERGROUND UTILITIES.
8. WORK SUBJECT TO APPROVAL BY ANY POLITICAL SUBDIVISION OR AGENCY MUST BE APPROVED PRIOR TO (A) BACKFILLING TRENCHES FOR PIPE (B) PLACING OF AGGREGATE BASE (C) PLACING OF CONCRETE; (D) PLACING OF ASPHALT PAVING. WORK DONE WITHOUT SUCH APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF PERFORMING THE WORK IN AN ACCEPTABLE MANNER.
9. ALL CONTRACTORS WORKING WITHIN EXISTING PUBLIC ROAD RIGHT-OF-WAY ARE REQUIRED TO SECURE A RIGHT-OF-WAY CONSTRUCTION PERMIT FROM ADA COUNTY HIGHWAY DISTRICT AT LEAST TWENTY-FOUR (24) HOURS PRIOR TO ANY CONSTRUCTION.
10. THE CONTRACTOR SHALL CONSTRUCT ALL IMPROVEMENTS IN ACCORDANCE WITH THE PLANS STAMPED "APPROVED FOR CONSTRUCTION" BY THE CITY OF GARDEN CITY. THESE PLANS WILL BE PROVIDED TO THE CONTRACTOR BY THE ENGINEER OR PROJECT INSPECTOR PRIOR TO CONSTRUCTION. WORK SHALL NOT BE DONE WITHOUT THE CURRENT SET OF APPROVED PLANS.

SHEET INDEX

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C2.0 WATER SYSTEM OVERVIEW PLAN
C2.1 WATER SYSTEM PLAN
C3.0 GRAVITY SEWER PLAN & PROFILE
C3.1 PRESSURE SEWER PLAN & PROFILE
C3.2 SEWER PUMP STATION DETAILS
C3.3 PUMP SYSTEM SPECIFICATIONS

DAVID EVANS AND ASSOCIATES INC.
9175 W Black Eagle Dr.
Boise, ID 83709
208.900.9049

Minor Land Division Construction Drawings for:
BOISE BIBLE COLLEGE

8695 W MARIGOLD STREET, GARDEN CITY, IDAHO

COVER SHEET / SITE PLAN

NO.	DATE	REVIEWED BY:	BY	CK
		REVISION		

DATE:

CITY PERMIT

PROFESSIONAL ENGINEER REGISTERED 12645 STATE OF IDAHO BRYAN APPLEBY
9/25/26

CHECKED BY: SS
DESIGNED BY: BA
DRAWN BY: BA

DATE: 9/25/2026

PROJECT NO.
REND00000015

SHEET NO.
C0.0

Plot Date: 9/24/2026 4:35 PM By: Bryan Appleby
Save Date: 9/24/2026 4:23 PM By: Barja File: P:\RIVEN\D0000000\0400\CAD\06 Plan And Detail Sheets\Antioch Apartments – Plan Sheets.dwg

GARDEN CITY STANDARD CONSTRUCTION NOTES (FEB. 2026)

FOR PROJECTS THAT CONTAIN PUBLIC WATER, PUBLIC SEWER, NON-ACHD DRAINAGE, PRIVATE ROADS AND/OR PERMEABLE PAVERS.

NOTES APPLICABLE TO ALL CONSTRUCTION

1. COMPLIANCE WITH THE IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY (IDEQ) REQUIREMENTS FOR PROTECTION FROM EROSION BY STORM WATER IS REQUIRED FOR THIS PROJECT. A RESPONSIBLE PARTY (RP) SHALL BE RESPONSIBLE TO COMPLY WITH THE IDEQ REQUIREMENTS. IF THE OWNER HAS NOT DESIGNATED A RP, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A RP. THE RP IS REQUIRED TO PREPARE, FILE AND COMPLY WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR THIS PROJECT. THE RP IS RESPONSIBLE TO FILE A NOTICE OF INTENT (NOI) TO CONSTRUCT WITH IDEQ. IDEQ MUST OFFICIALLY ACCEPT THE NOI PRIOR TO BEGINNING ANY SITE DISTURBANCE ACTIVITIES. THE SWPPP IS A DOCUMENT/PLAN THAT IS REQUIRED TO BE UPDATED AND AMENDED TO BEST FIT THE SITE AS CONSTRUCTION OCCURS. THE RP IS RESPONSIBLE TO KEEP THE PLAN CURRENT. AT COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND AFTER THE PROJECT SITE IS STABILIZED FOR EROSION CONTROL, THE RP IS REQUIRED TO PREPARE AND SUBMIT A NOTICE OF TERMINATION OF THE SWPPP WITH IDEQ.

   -OR, FOR SITES UNDER ONE ACRE-

2. THE CONTRACTOR SHALL COMPLY WITH THE CITY OF GARDEN CITY'S APPROVED EROSION AND SEDIMENT CONTROL PLAN (ESCP) FOR THIS PROJECT. A RESPONSIBLE PARTY (RP) SHALL BE RESPONSIBLE TO COMPLY WITH THE ESCP REQUIREMENTS. IF THE OWNER HAS NOT DESIGNATED A RP, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A RP. THE RP IS REQUIRED TO COMPLY WITH THE CITY OF GARDEN CITY'S ORDINANCE FOR CONTROL FOR EROSION FROM THIS CONSTRUCTION SITE. THE ESCP IS A DOCUMENT/PLAN THAT IS REQUIRED TO BE UPDATED AND AMENDED TO BEST FIT THE SITE AS CONSTRUCTION OCCURS. THE RP IS RESPONSIBLE TO KEEP THE PLAN CURRENT. AT COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND AFTER THE PROJECT SITE IS STABILIZED FOR EROSION CONTROL, THE ESCP IS TERMINATED.
3. ALL CONSTRUCTION, MATERIALS, APPURTENANCES AND TESTING SHALL COMPLY WITH THE REQUIREMENTS OF THE 2020 EDITION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC), UNLESS SPECIFICALLY MODIFIED BY THESE CONSTRUCTION DOCUMENTS.
4. THE CONTRACTOR, ALL APPLICABLE SUB-CONTRACTORS, DEVELOPER/OWNER, UTILITY COMPANY REPRESENTATIVES, A GARDEN CITY DEPARTMENT OF PUBLIC WORKS REPRESENTATIVE AND AN ADA COUNTY HIGHWAY DISTRICT REPRESENTATIVE SHALL ATTEND A PRE-CONSTRUCTION CONFERENCE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. THE CONTRACTOR SHALL OBTAIN A CONSTRUCTION PERMIT FROM THE ADA COUNTY HIGHWAY DISTRICT AT LEAST 24 HOURS PRIOR TO COMMENCING CONSTRUCTION OF ANY OF THE IMPROVEMENTS SHOWN HEREON LOCATED WITHIN PUBLIC RIGHT-OF-WAY.
6. CONSTRUCTION INSPECTION SHALL BE PERFORMED BY THE PROJECT ENGINEER, THE ADA COUNTY HIGHWAY DISTRICT AND/OR THE GARDEN CITY DEPARTMENT OF PUBLIC WORKS. INSPECTION BY THE GARDEN CITY DEPARTMENT OF PUBLIC WORKS WILL BE FOR DEPARTMENT PURPOSES ONLY TO SPOT CHECK WORK COMPLIANCE WITH THE CITY'S REQUIREMENTS. IT IS THE PROJECT ENGINEER'S RESPONSIBILITY TO ASSURE COMPLIANCE WITH THE PROJECT PLANS AND SPECIFICATIONS.
7. THE CONTRACTOR SHALL VERIFY SITE CONDITIONS AND DIMENSIONS PRIOR TO BEGINNING WORK. ANY DEVIATIONS, OMISSIONS OR ERRORS SHALL BE PRESENTED TO THE PROJECT ENGINEER FOR RESOLUTION. ANY CHANGES TO THE PLANS AND SPECIFICATIONS SHALL BE SUBMITTED TO AND APPROVED BY THE GARDEN CITY DEPARTMENT OF PUBLIC WORKS PRIOR TO IMPLEMENTATION OF THE CHANGE. SAID CHANGE MAY ALSO NEED TO BE SUBMITTED TO THE IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY FOR APPROVAL.
8. THE CONTRACTOR SHALL CONTACT DIGLINE (811) AND OTHER APPROPRIATE UTILITY PROVIDERS FOR UTILITY LOCATIONS AT LEAST 72 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
9. ANY WATERS CREATED BY DEWATERING SHALL NOT BE PERMITTED TO DIRECTLY DISCHARGE TO ANY EXISTING SURFACE WATER FACILITY. PRIOR TO DISCHARGING TO WATERS OF THE STATE OF IDAHO, THE CONTRACTOR SHALL SECURE A SHORT-TERM ACTIVITY EXEMPTION FROM THE APPLICABLE REGIONAL OFFICE OF THE IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY.
10. HORIZONTAL AND VERTICAL SEPARATION OF POTABLE AND NON-POTABLE PIPELINES SHALL MEET THE REQUIREMENTS OF ISPWC SECTION 405 AND ISPWC DRAWING NO. 407.

SANITARY SEWER NOTES

11. ALL SEWER PIPE AND FITTINGS WITH COVER GREATER THAN 3 FEET, SHALL BE POLYVINYL CHLORIDE (PVC) CONFORMING TO THE REQUIREMENTS OF ASTM D-3034, SDR-35 FOR SIZES 4-INCH THROUGH 15-INCH; ASTM F-679, SDR-35, T-1 WALL FOR SIZES 18-INCH THROUGH 27-INCH; OR ASTM F-794, T-46 FOR SIZES 18-INCH THROUGH 36-INCH. THE MINIMUM COVER FOR ALL PVC SEWER LINES SHALL BE 3 FEET. SEWER PIPE AND FITTINGS WITH COVER LESS THAN 3 FEET SHALL BE DUCTILE IRON (DI) CONFORMING TO ANSI A-21.51 OR AWWA C-151, MINIMUM CLASS 50.
12. SANITARY SEWER MANHOLES SHALL BE CONSTRUCTED OF REINFORCED PRECAST CONCRETE PER THE ISPWC WITH A MAXIMUM OF 12 INCHES OF CONCRETE GRADE RINGS, A 24-INCH DIAMETER CAST IRON RING AND COVER AND A CONCRETE COLLAR PER ISPWC DRAWINGS SD- 501, SD-505, SD-507, SD-508, SD-509. MANHOLES SHALL NOT HAVE STEPS. THE SEWER CONTRACTOR SHALL FIELD VERIFY THAT NO MORE THAN 12-INCHES OF GRADE RINGS ARE NECESSARY TO ADJUST THE MANHOLE TO FINAL GRADE. GRADE RINGS, RING AND COVERS SHALL BE PROVIDED BY THE SEWER CONTRACTOR. MANHOLE CONES SHALL BE ECCENTRIC FOR ALL MANHOLES 4 FEET AND DEEPER. THE VERTICAL WALL OF THE CONE SHALL BE PLACED UPSTREAM AND ROTATED 45°. CONCENTRIC CONES SHALL BE USED FOR MANHOLES LESS THAN 4 FEET DEEP.
13. MANUFACTURED COMPRESSION BOOTS SHALL BE USED IN MANHOLES WHERE PIPELINES ENTER AND LEAVE THE MANHOLE.
14. SEWER SERVICE LINES SHALL BE ISPWC TYPE “A” OR “B” AND CONSTRUCTED AND MARKED PER ISPWC DRAWING SD-511A. SERVICES SHALL NOT BE DEEPER THAN 5 FEET AT THE PROPERTY LINE, UNLESS SPECIFICALLY APPROVED BY THE CITY. SERVICES SHALL EXTEND HORIZONTALLY 10 FEET BEYOND THE PROPERTY LINE. SERVICE LINES SHALL INCLUDE AN INSPECTION CLEANOUT PLACED DIRECTLY ADJACENT TO AND INSIDE PUBLIC STREET RIGHT-OF- WAY OR THE SEWER EASEMENT LINE. THE CLEANOUT SHALL CONFORM TO SD-506A & SD- 506B (BOLT DOWN COVER OPTION) WITH THE RISER BEING THE SAME SIZE AS THE SERVICE LINE.
15. SERVICE LINE CONNECTIONS TO NEW MAINLINES SHALL USE A FULL-SERVICE TEE. SERVICE LINE CONNECTIONS TO EXISTING MAINLINES THAT ARE CONCRETE OR A CONCRETE DERIVATIVE SHALL USE A TAPPING SADDLE - NO MORE THAN ONE SERVICE SHALL BE ALLOWED PER STICK OF MAINLINE PIPE. SERVICE CONNECTIONS TO EXISTING MAINLINES THAT ARE NOT CONCRETE OR A CONCRETE DERIVATIVE SHALL USE AN INSERTA-TEE OR A PRIOR APPROVED EQUAL - SERVICES SHALL BE SEPARATED ON THE MAINLINE BY AT LEAST 2-FEET CENTER TO CENTER.
16. ALL SEWER MAINS AND SERVICES SHALL BE BEDDED PER THE REQUIREMENTS OF TYPE I BEDDING, EXCEPT THAT BEDDING MATERIAL SHALL BE SELECT ¾-INCH MAXIMUM CRUSHED GRAVEL CHIPS. ALL BEDDING SHALL BE THOROUGHLY SHOVEL-SLICED UNDER THE PIPE.
17. GROUNDWATER LEVELS SHALL BE MAINTAINED BELOW THE TRENCH BOTTOM AT ALL TIMES DURING CONSTRUCTION. GROUNDWATER SHALL NOT BE PERMITTED TO ENTER THE PIPELINE SYSTEM DURING CONSTRUCTION. AS SOON AS POSSIBLE THE CONTRACTOR SHALL INSTALL A REMOVABLE WATERTIGHT PLUG IN THE NEW PIPELINE AT THE POINT OF CONNECTION TO THE EXISTING SEWER SYSTEM.
18. SEWERS SHALL BE CLEANED AND TESTED AFTER ALL UTILITIES ARE INSTALLED AND PRIOR TO PAVING. MATERIAL CLEANED FROM THE CONSTRUCTION SHALL NOT BE PERMITTED TO DISCHARGE TO THE DOWNSTREAM RECEIVING PIPELINE. ALL INSTALLED SEWER PIPES SHALL BE TESTED IN ACCORDANCE WITH DIVISION 500 OF THE ISPWC. A REPRESENTATIVE OF THE CITY MUST BE PRESENT MUST OBSERVE THE TESTING. MAINLINE PIPELINE TESTING SHALL INCLUDE AIR PRESSURE, DEFLECTION AND CLOSED-CIRCUIT TELEVISION (CCTV) VISUAL INSPECTION. SERVICE LINE TESTING SHALL INCLUDE AIR PRESSURE AND CLOSED-CIRCUIT TELEVISION (CCTV). THE CCTV REPORT SHALL BE IN THE FORM OF A VHS VIDEOTAPE OR DVD AND A WRITTEN LOG. MANHOLES SHALL BE VACUUM OR HYDROSTATICALLY TESTED FOR LEAKAGE. THE SEWER SYSTEM SHALL NOT ACCEPT ANY FLOWS UNTIL THE CITY ISSUES AN INITIAL ACCEPTANCE OF THE SYSTEM.
19. THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF AT LEAST A ONE-YEAR FOLLOWING THE CITY'S INITIAL ACCEPTANCE.

WATERLINE NOTES

20. ALL WATER MAINS SHALL BE POLYVINYL CHLORIDE (PVC) CONFORMING TO THE REQUIREMENTS OF AWWA C-900, CLASS 235, DR-18. ALL FITTINGS SHALL BE MECHANICAL JOINT OR FLANGED DUCTILE IRON CONFORMING TO THE REQUIREMENTS OF AWWA C-110. ALL PLASTIC PIPE SHALL BE INSTALLED WITH A #12 DIRECT BURIAL TRACER WIRE PLACED ALONG THE NORTH AND EAST SIDE OF THE MAIN. THE TRACER WIRE WILL NOT BE EXTENDED UP IN TO OR ALONG VALVE BOXES, BUT SHALL CONTINUE ALONG THE MAINLINE, UNINTERRUPTED. MINIMUM BURIAL DEPTHS FOR WATER MAINS SHALL BE 4 FEET FROM FINISH GRADE TO THE TOP OF THE PIPE.
21. INDIVIDUAL OR DUAL WATER SERVICE CONNECTIONS 1-INCH OR SMALLER SHALL BE POLYETHYLENE PIPE CONFORMING TO AWWA C-901, CLASS 200, DR-7.3. SERVICES SHALL BE CONSTRUCTED CONFORMING TO THE GARDEN CITY STANDARD DRAWING. SERVICE PIPELINES SHALL BE A MINIMUM 1-INCH, UNLESS OTHERWISE NOTED.
22. INDIVIDUAL WATER SERVICE CONNECTIONS LARGER THAN 1-INCH SHALL BE POLYETHYLENE PIPE CONFORMING TO AWWA C-901, CLASS 200, DR-7.3. SERVICES SHALL BE CONSTRUCTED CONFORMING TO THE ISPWC SD-402. SERVICE PIPELINES SHALL BE A MINIMUM 2-INCH, UNLESS OTHERWISE NOTED.
23. WATER VALVES SHALL BE RESILIENT-SEAT GATE VALVES CONFORMING TO AWWA C-509 OR AWWA C-515. ALL WATER VALVES SHALL BE INSTALLED WITH A STANDARD 5-1/4 INCH DIAMETER, TWO-PIECE ADJUSTABLE CAST IRON VALVE BOX, TYLER/UNION SERIES 6855, OR EQUAL. THE CAST IRON COVER SHALL BE MARKED WITH THE WORD “WATER” AS AN INTEGRAL PART OF THE COVER.
24. FIRE HYDRANTS SHALL CONFORM TO AWWA C-502 AND ISPWC DRAWING SD-404. THE PUMPER NOZZLE OUTLET SHALL BE EQUIPPED WITH A “STORZ” ADAPTER.
25. ALL WATER MAINS AND SERVICES SHALL BE BEDDED PER THE REQUIREMENTS OF TYPE I BEDDING, EXCEPT THAT BEDDING MATERIAL SHALL BE SELECT ¾-INCH MAXIMUM CRUSHED GRAVEL CHIPS FOR WATER MAINS AND 3/8-INCH MAXIMUM CRUSHED GRAVEL CHIPS FOR SERVICE LINES. ALL BEDDING SHALL BE THOROUGHLY SHOVEL-SLICED UNDER THE PIPE.
26. ALL INSTALLED WATER LINES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH SECTION 401.3.6 OF THE ISPWC FOLLOWING INSTALLATION OF ALL UTILITIES AND PRIOR TO PAVING. EACH METER SETTER SHALL BE OPENED TO BE SURE THAT THE SERVICE CORPORATION STOP IS OPEN AND THE SERVICE IS FUNCTIONAL PRIOR TO PAVING. A REPRESENTATIVE OF THE CITY MUST BE PRESENT MUST OBSERVE THE TESTING. ALL INSTALLED WATER LINES SHALL BE FLUSHED, DISINFECTED AND TESTED FOR BACTERIA IN ACCORDANCE WITH SECTION 401.3.9 OF THE ISPWC. THE WATER SYSTEM SHALL NOT BE OPENED TO THE CITY SYSTEM UNTIL THE CITY ISSUES AN INITIAL ACCEPTANCE OF THE SYSTEM.
27. THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF AT LEAST A ONE-YEAR FOLLOWING THE CITY'S INITIAL ACCEPTANCE.

DRAINAGE NOTES

28. ALL INSPECTIONS SHALL REQUIRE A 24-HOUR NOTICE PRIOR TO THE REQUESTED INSPECTION TIME. CALL THE INSPECTION HOT LINE AT 208-472-2920.
29. PRIOR TO ANY EARTHWORK A 24-HOUR NOTICE TO BEGIN CONSTRUCTION IS REQUIRED. CALL INSPECTION HOT LINE AT 208-472-2920.
30. DRAINAGE INSPECTIONS SHALL BE CONDUCTED AT ANY GIVEN TIME OR UPON REQUEST, DURING CONSTRUCTION, VERIFYING COMPLIANCE WITH THE CITY REQUIREMENTS AND CONSTRUCTION ACTIVITIES ARE FOLLOWED AS PER THE APPROVED PLANS.
31. ALL DRAINAGE CONSTRUCTION OBSERVATIONS MUST BE PERFORMED BY THE APPLICANT'S DESIGN ENGINEER.
   a) SUBMIT TO THE GARDEN CITY ENVIRONMENTAL DIVISION THE FOLLOWING DOCUMENTATION PRIOR SIGNATURE OF THE CITY ON A FINAL SUBDIVISION PLAT OR PRIOR TO THE FINAL INSPECTION FOR A CERTIFICATE OF OCCUPANCY, WHICHEVER OCCURS FIRST:

      i) THE DESIGN ENGINEER'S DRAINAGE CONSTRUCTION OBSERVATION REPORTS.

      ii) A SIGNED, WRITTEN STATEMENT FROM THE DESIGN ENGINEER THAT ALL DRAINAGE STRUCTURES AND APPURTENANCES WERE CONSTRUCTED IN ACCORDANCE TO THE APPROVED PLANS.
32. THE DRAINAGE SYSTEM AND ANY FILTER FABRIC SHALL NOT BE COVERED PRIOR TO INSPECTION. CALL THE INSPECTION HOT LINE AT 208-472-2920.
33. THE SIZE AND LOCATION OF THE DRAINAGE SYSTEM SHALL CORRESPOND WITH THE APPROVED DRAINAGE SYSTEM PLAN AND SHALL BE INSPECTED.
34. FINAL INSPECTION OF THE STORM DRAINAGE SYSTEM SHALL BE CONDUCTED FOLLOWING THE PAVING AND FINAL LANDSCAPING.
35. ALL DRAINAGE CONVEYANCE ACCESS POINTS SHALL BE STENCILED OR MARKED WITH IDENTIFYING STATEMENT FOR THE PUBLIC “DO NOT DUMP - SYSTEM DRAINS TO GROUNDWATER” OR “RIVER”, WHICHEVER IS RELEVANT TO THE SYSTEM DISPOSAL DESIGN.
36. TRAFFIC RATED MANHOLE LIDS SHALL BE USED.
37. ALL PARKING LOT GRADES SHALL BE AT LEAST 1% FOR ASPHALTIC-CONCRETE AND 0.4% FOR CONCRETE.

ROADWAY CONSTRUCTION NOTES

38. MANHOLE GRADE RINGS, CAST IRON RINGS AND COVERS SHALL BE PROVIDED BY THE SEWER CONTRACTOR. THE ROAD CONTRACTOR SHALL INSTALL THE SEWER GRADE RINGS, CAST IRON RINGS, COVERS AND CONCRETE COLLARS TO FINISH GRADE. WATER VALVE BOXES AND COVERS SHALL BE PROVIDED BY THE WATER CONTRACTOR. THE ROAD CONTRACTOR SHALL INSTALL THE WATER VALVE BOXES COVERS AND CONCRETE COLLARS TO FINISH GRADE.

PERMEABLE PAVER NOTES (WHEN APPLICABLE)

39. GARDEN CITY WILL NOT REPAIR PERMEABLE PAVER SURFACES OR THEIR BASE SECTIONS WHEN CITY INFRASTRUCTURE (WATER MAINS, WATER SERVICES, SEWER MAINS AND SEWER MANHOLES) IS LOCATED BENEATH THEM. THE CITY WILL MAINTAIN THE WATER/SEWER FACILITIES NOTED, BUT WILL NOT REPAIR THE STORM DRAIN FACILITIES ABOVE THEM. SAID REPAIR IS THE RESPONSIBILITY OF THE PRIVATE PARTY OWNING/OPERATING/MAINTAINING THE STORM DRAIN FACILITIES.
40. SANITARY SEWER SERVICES FROM THE CONNECTION TO THE MAINLINE TO THE POINT OF USE WILL BE PRIVATE UNDER PERMEABLE PAVERS. OWNERSHIP AND REPAIR OF SAID PRIVATE SERVICES WILL BE THE RESPONSIBILITY OF THE PRIVATE PARTY OWNING OPERATING AND MAINTAINING THE STORM DRAIN FACILITIES.
41. PERMEABLE PAVER OWNERSHIP/MAINTENANCE RESPONSIBILITIES SHALL BE STATED IN AN APPROPRIATE DOCUMENT (I.E. MAINTENANCE AGREEMENT, COVENANTS, CONDITIONS AND RESTRICTIONS, FINAL PLAT).
42. ALL WATER MAIN LINES UNDER AND WITHIN TEN (10) FEET OF PERMEABLE PAVERS SHALL BE DUCTILE IRON.

TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL SHALL CONFORM TO THE LATEST ADOPTED EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), APPLICABLE STATE AND LOCAL REQUIREMENTS, AND THE APPROVED TRAFFIC CONTROL PLAN, WHERE REQUIRED.
2. THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, RELOCATE AS NECESSARY, AND REMOVE ALL TRAFFIC CONTROL DEVICES REQUIRED TO SAFELY ACCOMMODATE VEHICULAR, BICYCLE, AND PEDESTRIAN TRAFFIC DURING CONSTRUCTION.
3. FLAGGING OPERATIONS SHALL BE PERFORMED BY QUALIFIED PERSONNEL EQUIPPED WITH COMMUNICATION DEVICES ADEQUATE TO SAFELY COORDINATE TRAFFIC MOVEMENTS AND CONSTRUCTION OPERATIONS.
4. TRAFFIC CONTROL DEVICES NOT IN ACTIVE USE SHALL BE REMOVED, COVERED, OR RELOCATED SO THEY DO NOT CONFLICT WITH EXISTING TRAFFIC CONDITIONS OR MISLEAD THE TRAVELING PUBLIC.
5. UNLESS OTHERWISE APPROVED BY THE OWNER OR GOVERNING AGENCY, THE CONTRACTOR SHALL MAINTAIN ACCESS TO ADJACENT PROPERTIES AND SHALL MAINTAIN THE NUMBER OF TRAFFIC LANES REQUIRED BY THE APPROVED TRAFFIC CONTROL PLAN.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING, MAINTAINING, AND ADJUSTING ALL TRAFFIC CONTROL DEVICES NECESSARY TO PROTECT THE TRAVELING PUBLIC, CONSTRUCTION PERSONNEL, AND ADJACENT PROPERTY THROUGHOUT THE DURATION OF CONSTRUCTION.
7. THE CONTRACTOR SHALL IMMEDIATELY CORRECT ANY DEFICIENCIES IN TRAFFIC CONTROL IDENTIFIED BY THE OWNER, ENGINEER, OR GOVERNING AGENCY. SUCH CORRECTIONS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

ADA COUNTY HIGHWAY DISTRICT (ACHD) NOTES

1. ALL CONSTRUCTION WITHIN THE ADA COUNTY HIGHWAY DISTRICT'S (ACHD) RIGHT-OF-WAY SHALL CONFORM TO THE CURRENT EDITION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC) AND THE ACHD SUPPLEMENTAL SPECIFICATIONS. NO EXCEPTIONS TO DISTRICT POLICY, STANDARDS, AND THE ISPWC WILL BE ALLOWED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE DISTRICT. THE CURRENT EDITION OF THE ACHD SUPPLEMENTAL SPECIFICATIONS TO THE ISPWC IS AVAILABLE FOR DOWNLOAD AT: https://www.achdidaho.org/projects/policy-manual
2. UTILITY STREET CUTS IN PAVEMENT LESS THAN FIVE YEARS OLD ARE NOT ALLOWED UNLESS APPROVED IN WRITING BY THE DISTRICT. CONTACT THE DISTRICT'S UTILITY COORDINATOR AT 208-387-6259 (WITH FILE NUMBERS) FOR DETAILS.
3. ALL WATER VALVES, BLOW-OFFS, AND MANHOLES SHALL BE GRADED AND PLACED SO AS NOT TO CONFLICT WITH ANY CONCRETE CURB, GUTTERS, SIDEWALK, OR OTHER STREET IMPROVEMENTS.
4. CONSTRUCT ALL UTILITY CUTS AND STREET REPAIRS PER ISPWC SD-301, ISPWC SD-303 (ACHD SUPPLEMENTAL), AND SD-806 (ACHD SUPPLEMENTAL).
5. TRAFFIC CONTROL PLANS AND SAWCUTS ASSOCIATED WITH THE CONSTRUCTION OF ANY UTILITY WILL BE COORDINATED AND APPROVED THROUGH ACHD CONSTRUCTION SERVICES (208-387-6284) PRIOR TO INITIATING ANY CONSTRUCTION.
6. REPLACE ANY EXISTING DAMAGED CURB, GUTTER, AND SIDEWALK, AND ANY THAT MAY BE DAMAGED DURING THE CONSTRUCTION OF THE PROPOSED DEVELOPMENT. CONTACT ACHD CONSTRUCTION SERVICES (208-387-6284).
7. ALL EXISTING IRRIGATION FACILITIES SHALL BE RELOCATED OUTSIDE OF THE RIGHT-OF-WAY.
8. ACHD WILL INSPECT ALL IMPROVEMENTS WHICH FALL WITHIN THE ACHD RIGHT-OF-WAY OR EASEMENT INCLUDING BUT NOT LIMITED TO STORM DRAIN CONSTRUCTION, TRENCH BACKFILL PROCEDURES, ROADWAY CONSTRUCTION, AND CONCRETE WORK. ANY WORK TO BE DONE OUTSIDE OF THE 300' EXTENDED BOUNDARY OF THE PROJECT WILL REQUIRE A SEPARATE PERMIT THROUGH ACHD CONSTRUCTION SERVICES DIVISION. THE CONTRACTOR WILL SCHEDULE AN INSPECTION, REQUESTED THROUGH ACHD CONSTRUCTION SERVICES (208-387-6284), A MINIMUM OF 24 HOURS PRIOR TO CONSTRUCTION STARTING.
9. ALL UTILITY IMPROVEMENTS ARE TO BE CONSTRUCTED TO ACCOMMODATE THE COLLAR REQUIREMENT PER ISPWC SD-616 AND BE IN ACCORDANCE WITH SECTION 703 OF THE ISPWC.
10. THE CONTRACTOR SHALL CONTACT ACHD TRAFFIC OPERATIONS (208-387-6190) IN THE EVENT ANY ACHD CONDUITS (SPARE OR FILLED) ARE COMPROMISED DURING ANY PHASE OF CONSTRUCTION.
11. ACTUAL FIELD CONDITIONS DURING TRENCHING MAY REQUIRE ADDITIONAL PAVEMENT REPAIR BEYOND THE LIMITS SHOWN ON THE PLANS. THE FOLLOWING CONDITIONS ARE LISTED IN SECTION 6000 OF THE ACHD POLICY MANUAL.
   - ALL ASPHALT MATCH LINES FOR PAVEMENT REPAIR SHALL BE PARALLEL TO THE CENTERLINE OF THE STREET AND INCLUDE ANY AREA DAMAGED BY EQUIPMENT DURING TRENCHING OPERATIONS.
   - IF THE CUMULATIVE DAMAGED PAVEMENT AREA EXCEEDS 50% OF THE TOTAL ROAD SURFACE, CONTRACTOR SHALL REPLACE THE ENTIRE ROADWAY SURFACE.
   - CONTRACTOR SHALL REPLACE THE PAVEMENT SURFACE TO ENSURE MATCH LINE DOES NOT FALL WITHIN THE WHEEL PATH OF A LANE. MATCH LINE SHALL ONLY FALL IN THE CENTER OR EDGE OF A TRAVEL LANE.
   - FLOWABLE FILL OR IMPORTED MATERIAL MAY BE REQUIRED IF THE NATIVE TRENCH MATERIAL IS DEEMED UNSUITABLE BY ACHD INSPECTOR, DOES NOT MEET COMPACTION STANDARDS OR TIME IS A CRITICAL FACTOR.
   - ANY EXCEPTIONS TO THESE RULES SHALL BE PRE-APPROVED IN WRITING BY DISTRICT STAFF BEFORE CONSTRUCTION BEGINS.
   - CONSTRUCT ALL PAVEMENT MATCHES (INCLUDING DRIVEWAY APPROACHES AND UTILITY CUT STREET REPAIRS) WITHIN ACHD RIGHT-OF-WAY TO MATCH THE EXISTING STREET PAVEMENT SECTION OR TO USE THE FOLLOWING (USE WHICHEVER PAVEMENT SECTION IS GREATER):

   COLLECTOR ROADWAYS **(MARIGOLD STREET)** SHALL BE:
   3 INCHES (3") MINIMUM OF **SP-3, 1/2-INCH MIX, PG 64-28**,
   4 INCHES (4") OF **3/4-INCH CRUSHED AGGREGATE BASE**, AND
   20 INCHES (20") OF **6-INCH MINUS PIT RUN**.

12. PIPE TRENCH SHALL CONFORM TO THE LATEST EDITION OF THE ISPWC DIVISION 300 AND SD-301. BEDDING AND BACKFILL SHALL BE CONSTRUCTED PER SECTIONS 305 AND 306 OF THE ISPWC.
13. PRIOR TO PLACEMENT OF ANY PAVEMENT MARKINGS, COORDINATE WITH ACHD INSPECTION STAFF. ALL PAVEMENT MARKINGS SHALL COMPLY WITH ACHD POLICY AND ISPWC SECTION 1100. MARKINGS SHALL TRANSITION SMOOTHLY WITH EXISTING PAVEMENT MARKINGS.
14. ALL EXCAVATIONS (INCLUDING TEST PITS) WITHIN CURRENT OR FUTURE ACHD RIGHT-OF-WAY PERFORMED DURING DEMOLITION ACTIVITIES AND/OR CONSTRUCTION OF SITE, UTILITY, AND BUILDING IMPROVEMENTS SHALL BE EXCAVATED TO NATIVE SOIL AND BACKFILLED WITH STRUCTURAL FILL PER ISPWC SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SOILS DATA AND A COPY OF COMPACTION TESTING TO ACHD TO VERIFY NATIVE MATERIAL MEETS THE REQUIREMENTS FOR ENGINEERED FILL PER ISPWC SPECIFICATIONS.
15. FOR SUBDIVISION SIGN INSTALLATION, OUTSIDE INSTALLERS MUST BE BONDED WITH ACHD AND OBTAIN A NO-CHARGE RIGHT-OF-WAY PERMIT.
16. DETECTABLE WARNING TRUNCATED DOMES SHALL BE FABRICATED INSERTS CAST (WET SET) INTO THE CONCRETE (STAMPED CONCRETE AND ADHESIVE MATS NOT ALLOWED) AND SHALL BE COLORED "TRAFFIC YELLOW", RAMPS SHALL NOT EXCEED 8.33% (1:12) LONGITUDINAL SLOPE AND 2.0% (1/4"/FT) CROSS SLOPE, NO TOLERANCES WILL BE ALLOWED.
17. SIDEWALKS SHALL NOT EXCEED 5.0% (1:20) LONGITUDINAL SLOPE AND/OR 2.0% (1/4"/FT) CROSS-SLOPE, NO TOLERANCES WILL BE ALLOWED.
18. ACHD WILL PROVIDE ELECTRONIC MARKERS TO MARK CORNERS OF SEEPAGE TRENCHES. CONTRACTOR TO COORDINATE WITH ACHD INSPECTION STAFF FOR PLACEMENT OF THE MARKERS DURING CONSTRUCTION AND PRIOR TO BACKFILL OF THE SEEPAGE TRENCHES. THE LOCATORS ARE TO BE SUPPLIED BY ACHD AND ARE $25 EACH - TO BE PAID PRIOR TO APPROVAL OF THE FINAL PLAT.

ENGINEER'S GENERAL CIVIL NOTES

1. THE CONTRACTOR SHALL KEEP A COMPLETE HARD COPY OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC) AT THE WORK SITE AT ALL TIMES. THE ISPWC IS AVAILABLE FOR PURCHASE AT: https://lhtac.org/resources/ispwc/.
2. THE CONTRACTOR SHALL EXAMINE THE PROJECT SITE, BECOME FAMILIAR WITH EXISTING CONDITIONS, COMPARE THOSE CONDITIONS WITH THE CONTRACT DOCUMENTS, AND SATISFY THEMSELVES THAT THE WORK CAN BE COMPLETED AS SHOWN. ANY CONFLICTS, OMISSIONS, OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED WORK.
3. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS, UTILITY LOCATIONS, AND FIELD CONDITIONS NECESSARY TO PERFORM THE WORK. DIMENSIONS SHALL NOT BE SCALED FROM THE DRAWINGS.
4. EXISTING UNDERGROUND UTILITY LOCATIONS SHOWN ON THE PLANS ARE BASED ON AVAILABLE INFORMATION AND ARE APPROXIMATE ONLY. THE ENGINEER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF UTILITY INFORMATION OBTAINED FROM OTHERS. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY LOCATING SERVICE AND SHALL DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND FACILITIES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICTS THAT MAY AFFECT THE PROPOSED IMPROVEMENTS.
5. THE CONTRACTOR SHALL NOT PROCEED WITH CONSTRUCTION WHERE KNOWN CONFLICTS, DISCREPANCIES, OR FIELD CONDITIONS DIFFER MATERIALLY FROM THOSE INDICATED IN THE CONTRACT DOCUMENTS WITHOUT FIRST OBTAINING WRITTEN CLARIFICATION FROM THE ENGINEER. WORK PERFORMED WITHOUT SUCH CLARIFICATION SHALL BE AT THE CONTRACTOR'S RISK, AND ANY RESULTING CORRECTIVE WORK SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
6. INFORMATION SHOWN ON THESE PLANS THAT WAS OBTAINED FROM SURVEYS, UTILITY OWNERS, RECORD DRAWINGS, GOVERNMENTAL AGENCIES, OR OTHER THIRD-PARTY SOURCES IS PROVIDED SOLELY FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF INFORMATION PREPARED BY OTHERS.
7. THE CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS, UTILITIES, MONUMENTS, LANDSCAPING, STRUCTURES, AND OTHER PROPERTY NOT DESIGNATED FOR REMOVAL. ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER AND THE GOVERNING AGENCY.
8. CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE APPROVED CONTRACT DOCUMENTS, APPLICABLE PERMITS, AND THE REQUIREMENTS OF THE GOVERNING AGENCIES HAVING JURISDICTION. WHERE CONFLICTS EXIST, THE MORE RESTRICTIVE REQUIREMENT SHALL GOVERN UNLESS OTHERWISE DIRECTED IN WRITING.
9. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, LICENSES, NOTIFICATIONS, AND APPROVALS REQUIRED TO PERFORM THE WORK UNLESS SPECIFICALLY IDENTIFIED IN THE CONTRACT DOCUMENTS AS BEING THE RESPONSIBILITY OF OTHERS.
10. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL REQUIRED TRAFFIC CONTROL, PEDESTRIAN PROTECTION, BARRICADES, WARNING DEVICES, AND TEMPORARY SAFETY MEASURES NECESSARY TO SAFELY PERFORM THE WORK AND MAINTAIN PUBLIC ACCESS AS REQUIRED.
11. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER, UTILITY PROVIDERS, SUBCONTRACTORS, AND OTHER CONTRACTORS WHOSE WORK MAY AFFECT OR BE AFFECTED BY THIS PROJECT.
12. NO CHANGES TO THE DESIGN SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS SHALL BE MADE WITHOUT PRIOR REVIEW AND WRITTEN AUTHORIZATION FROM THE ENGINEER AND OWNER, AND WHERE REQUIRED, APPROVAL BY THE GOVERNING AGENCY.
13. WORK REQUIRING INSPECTION SHALL REMAIN EXPOSED UNTIL THE REQUIRED INSPECTIONS HAVE BEEN COMPLETED. BACKFILLING, PAVING, OR COVERING WORK PRIOR TO INSPECTION SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.
14. THE CONTRACTOR SHALL MAINTAIN ONE CURRENT SET OF APPROVED CONSTRUCTION DRAWINGS ON THE PROJECT SITE AT ALL TIMES. THE CONTRACTOR SHALL RECORD ALL FIELD CHANGES AND DEVIATIONS FROM THE APPROVED PLANS AS CONSTRUCTION PROGRESSES AND SHALL PROVIDE MARKED-UP RECORD DRAWINGS TO THE ENGINEER UPON COMPLETION OF THE WORK.
15. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, TEMPORARY WORKS, AND JOBSITE SAFETY. NEITHER THE OWNER NOR THE ENGINEER SHALL HAVE RESPONSIBILITY FOR DIRECTING OR SUPERVISING CONSTRUCTION SAFETY.
16. IF THE CONTRACTOR DISCOVERS CONDITIONS THAT DIFFER MATERIALLY FROM THOSE INDICATED ON THE PLANS, INCLUDING UNKNOWN UTILITIES, UNSUITABLE SOILS, HAZARDOUS MATERIALS, ARCHAEOLOGICAL RESOURCES, OR OTHER UNFORESEEN CONDITIONS, WORK IN THE AFFECTED AREA SHALL CEASE UNTIL THE OWNER AND ENGINEER HAVE BEEN NOTIFIED AND APPROPRIATE DIRECTION HAS BEEN PROVIDED.
17. UPON COMPLETION OF CONSTRUCTION, ALL DISTURBED AREAS SHALL BE RESTORED, TEMPORARY FACILITIES REMOVED, EXCESS MATERIALS DISPOSED OF, AND THE PROJECT LEFT IN A CLEAN CONDITION ACCEPTABLE TO THE OWNER AND GOVERNING AGENCY.

CONTRACTOR SUBMITTAL REQUIREMENTS

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, PRODUCT DATA, MIX DESIGNS, MANUFACTURER'S LITERATURE, AND OTHER REQUIRED SUBMITTALS FOR ALL PRODUCTS INCORPORATED INTO THE WORK WHERE SPECIFIED BY THE CONTRACT DOCUMENTS OR REQUESTED BY THE ENGINEER. NO MATERIALS REQUIRING REVIEW SHALL BE INCORPORATED INTO THE WORK UNTIL THE ENGINEER HAS COMPLETED THE SUBMITTAL REVIEW.

- DRAIN ROCK (INCLUDING SOURCE, GRADATION, WASHING)
- BIORETENTION SOIL MEDIA
- STORM DRAIN SAND & GREASE TRAPS (INCLUDING HARDWARE)
- STORM DRAIN CATCH BASINS (INCLUDING HARDWARE)
- STORM DRAIN AND GRAVITY IRRIGATION MANHOLES (INCLUDING HARDWARE)
- STORM DRAIN AND GRAVITY IRRIGATION PIPING
- GEOTEXTILES AND GEOGRIDS
- SEWER GREASE INTERCEPTORS
- SEWER MANHOLES (INCLUDING HARDWARE)
- SEWER PIPING
- WATER METERS, SERVICE PIPING, FITTINGS, VALVES, HYDRANTS, ETC.
- PRESSURE IRRIGATION PIPING, FITTINGS, SERVICES, STRUCTURES, ETC.
- CONCRETE MIX DESIGN(S)
- ASPHALT CONCRETE MIX DESIGN(S)
- 3/4" BASE (INCLUDING SOURCE, GRADATION, ETC.)
- PIT RUN (INCLUDING SOURCE, GRADATION, ETC.)
- CONCRETE WHEEL STOPS
- DETECTABLE WARNING PANELS
- TRAFFIC SIGNS AND PAVEMENT MARKINGS

DAVID EVANS AND ASSOCIATES INC.
9175 W Black Eagle Dr.
Boise, ID 83709
208.900.9049

Minor Land Division Construction Drawings for:
BOISE BIBLE COLLEGE

STANDARD NOTES

8695 W MARIGOLD STREET, GARDEN CITY, IDAHO

NO.	DATE	REVISION	BY	CK

REVIEWED BY:
DATE:

CITY PERMIT

PROFESSIONAL ENGINEER
REGISTERED
12645
STATE OF IDAHO
BRYAN APPLEBY
9/25/26

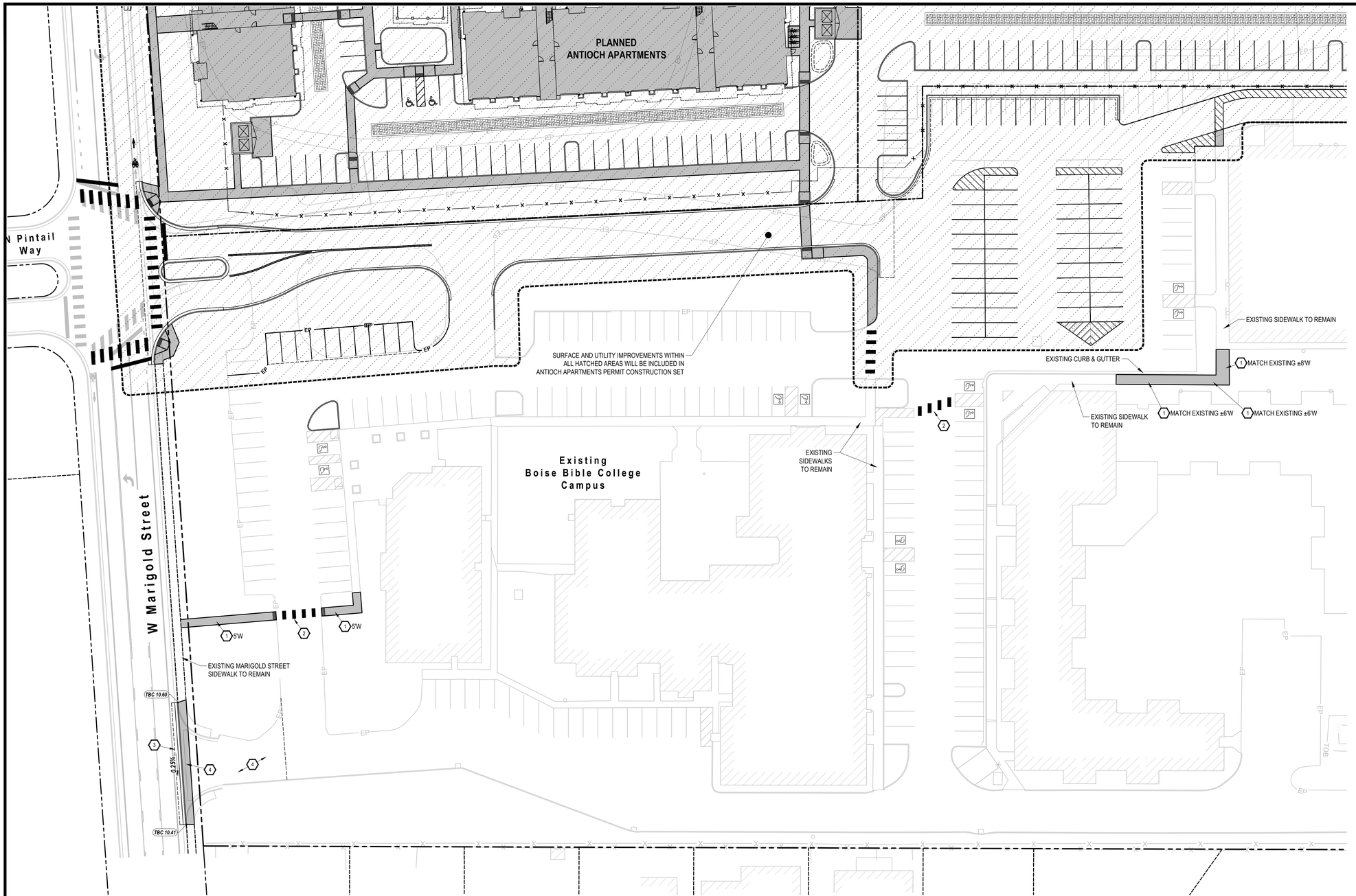
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DESIGNED BY: BA
DRAWN BY: BA

DATE: 9/25/2026

PROJECT NO.
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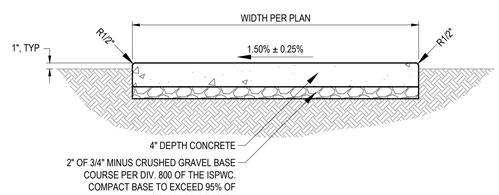


GENERAL GRADING NOTES

1. ADA PEDESTRIAN RAMPS SHALL NOT EXCEED 8.33% (1:12) LONGITUDINAL SLOPE. ADA WALKS SHALL NOT EXCEED 5.0% (1:20) LONGITUDINAL SLOPE AND 2.0% (1/4"/FT) CROSS SLOPE. NO TOLERANCES WILL BE ALLOWED.
2. THE CONTRACTOR(S) SHALL REMOVE ALL OBSTRUCTIONS ABOVE AND BELOW GROUND REQUIRED FOR THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. THIS WORK INCLUDES CLEARING AND GRUBBING, WHICH INCLUDES CLEARING THE GROUND SURFACE OF ALL TREES, STUMPS, BRUSH, UNDERGROWTH, HEDGES, HEAVY GROWTH OF GRASS AND/OR WEEDS, FENCES, STRUCTURES, DEBRIS, RUBBISH, AND OTHER MATERIAL NOT SUITABLE FOR THE FOUNDATION OF PAVEMENTS AND OTHER STRUCTURES. ALL MATERIAL NOT SUITABLE FOR USE ON-SITE SHALL BE DISPOSED OF OFF-SITE AT AN APPROVED LOCATION. ALSO REFER TO THE PROJECT GEOTECHNICAL REPORT.
3. OBSERVATIONS, APPROVAL AND FINAL ACCEPTANCE OF ALL GRADING (OUTSIDE THE PUBLIC RIGHT-OF-WAY) SHALL BE BY THE ENGINEER OF RECORD, AND THEIR DECISION SHALL BE FINAL. SUCH INSPECTIONS SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF PERFORMING THE WORK IN AN ACCEPTABLE MANNER.

SITE IMPROVEMENT KEYNOTES

1. SITE CONCRETE SIDEWALK PER DETAIL 1/C1.0, WIDTH PER PLAN. SEE GRADING NOTE #1 REGARDING ALLOWABLE LONGITUDINAL AND CROSS SLOPES. DETECTABLE WARNING TRUNCATED DOMES SHALL BE FABRICATED INSERTS CAST (WET SET) INTO THE CONCRETE (STAMPED CONCRETE AND ADHESIVE MATS NOT ALLOWED) AND SHALL BE COLORED "TRAFFIC YELLOW".
2. 24"-WIDE X 5'-LENGTH WHITE PAINT LADDER STYLE CROSSWALK, 48" TYPICAL SPACING.
3. 24"-WIDE MINIMUM SAWCUT WIDTH, REPLACE ASPHALT PAVEMENT SECTION PER ACHD NOTES ON SHEET C0.1.
4. REMOVE EXISTING CURB, GUTTER, & SIDEWALK; VALLEY GUTTER; PEDESTRIAN RAMPS; AND ASPHALT PAVEMENT AT DRIVEWAY ENTRANCE. REPLACE WITH 6" VERTICAL CURB AND GUTTER PER ISPWC SD-701 (ACHD SUPPLEMENTAL) AND ATTACHED CONCRETE SIDEWALK PER ISPWC SD-709 (ACHD SUPPLEMENTAL). COORDINATE LANDSCAPING AT REMOVED DRIVEWAY WITH COLLEGE STAFF.



SITE CONCRETE SIDEWALK 1
SCALE: NOT TO SCALE

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9175 W Black Eagle Dr.
Boise, ID 83709
208.900.9049

Minor Land Division Construction Drawings for:
BOISE BIBLE COLLEGE

PEDESTRIAN IMPROVEMENT PLAN

8695 W MARIGOLD STREET, GARDEN CITY, IDAHO

NO.	DATE	REVISION	BY	CK

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9/25/26

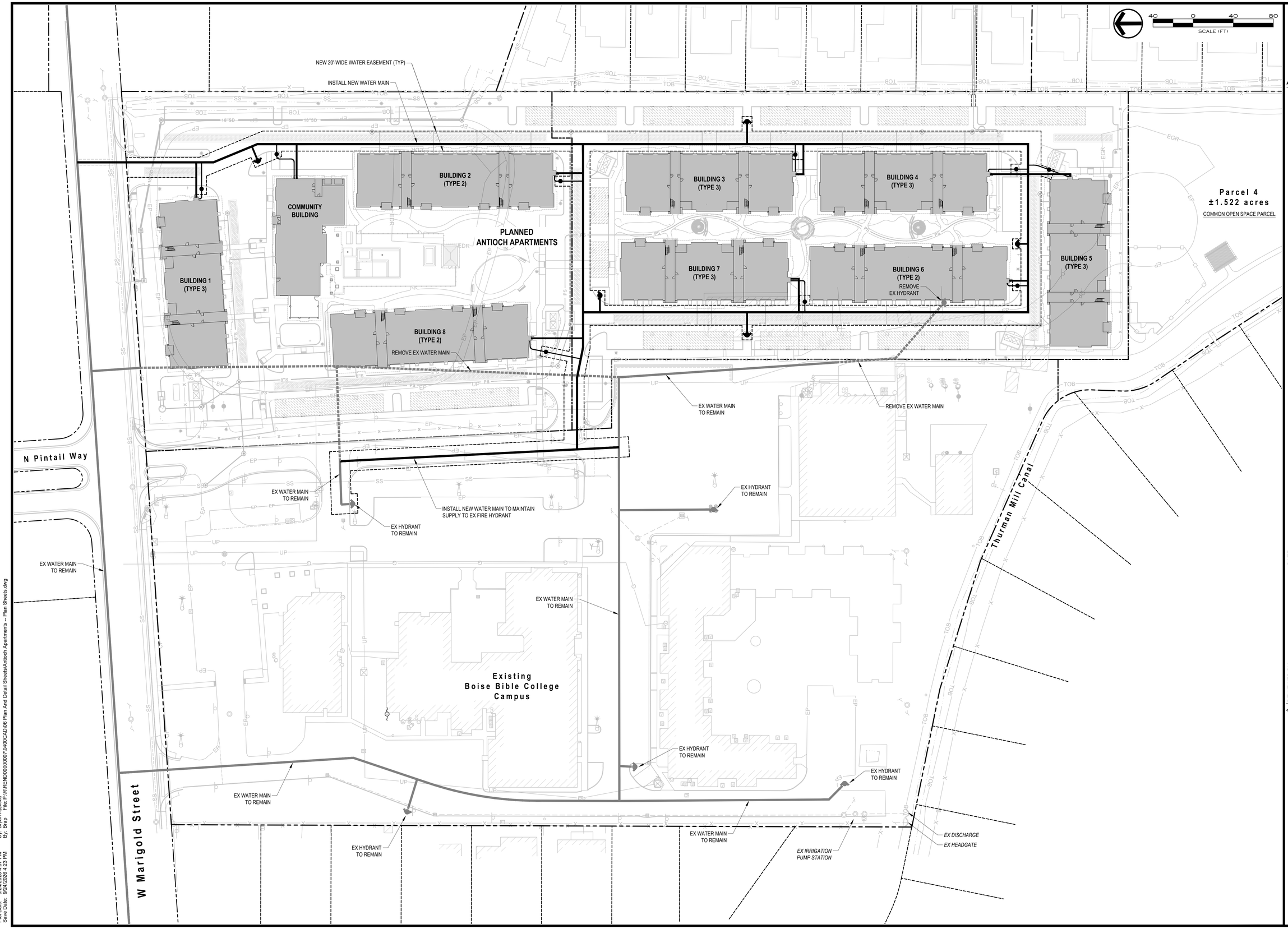
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Boise, ID 83709
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Minor Land Division Construction Drawings for:
BOISE BIBLE COLLEGE

WATER SYSTEM OVERVIEW PLAN

8695 W MARIGOLD STREET, GARDEN CITY, IDAHO

NO.	DATE	REVISION	BY
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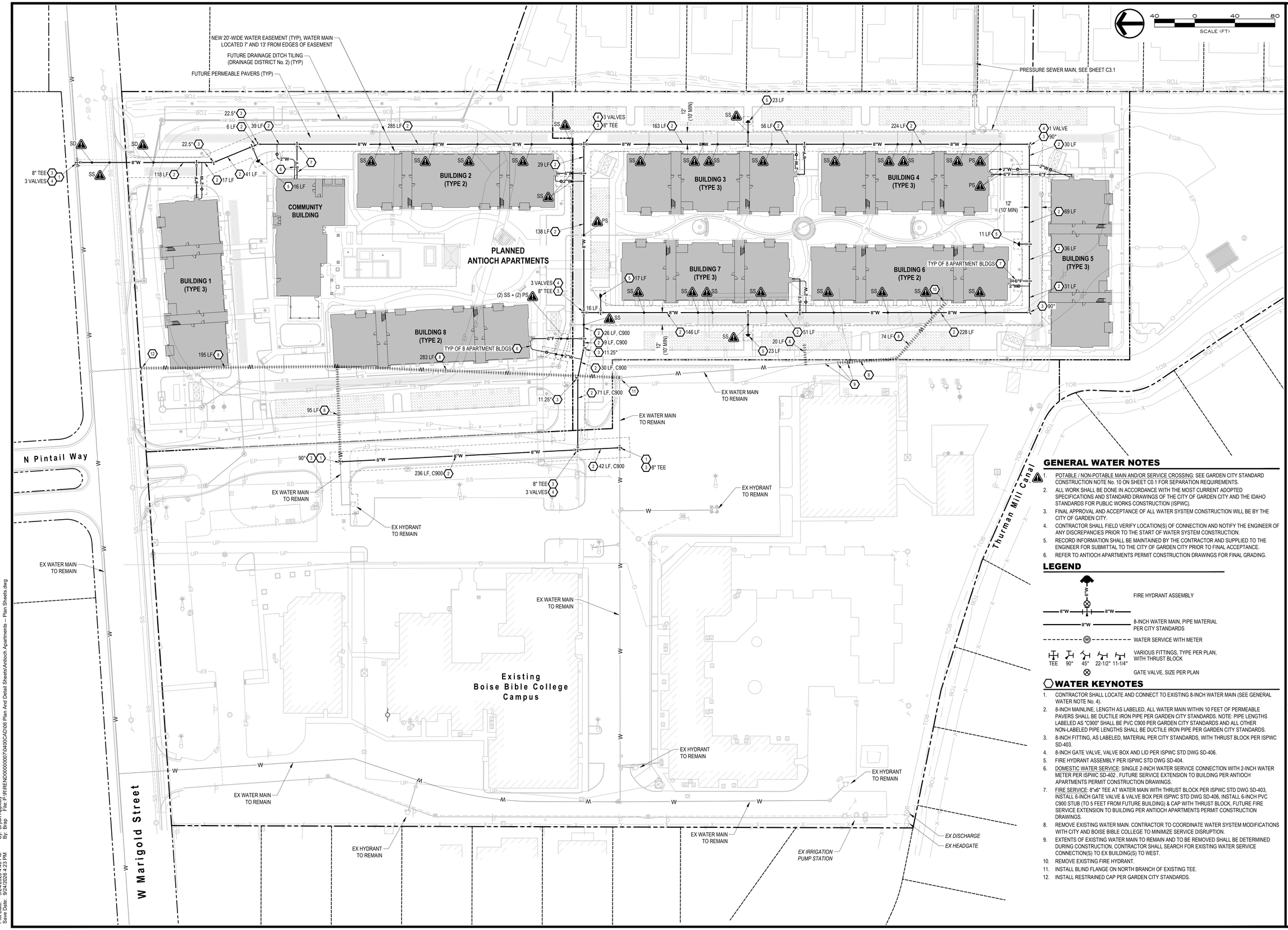
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GENERAL WATER NOTES

1. POTABLE / NON-POTABLE MAIN AND/OR SERVICE CROSSING: SEE GARDEN CITY STANDARD CONSTRUCTION NOTE No. 10 ON SHEET C0.1 FOR SEPARATION REQUIREMENTS.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT ADOPTED SPECIFICATIONS AND STANDARD DRAWINGS OF THE CITY OF GARDEN CITY AND THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC).
3. FINAL APPROVAL AND ACCEPTANCE OF ALL WATER SYSTEM CONSTRUCTION WILL BE BY THE CITY OF GARDEN CITY.
4. CONTRACTOR SHALL FIELD VERIFY LOCATION(S) OF CONNECTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO THE START OF WATER SYSTEM CONSTRUCTION.
5. RECORD INFORMATION SHALL BE MAINTAINED BY THE CONTRACTOR AND SUPPLIED TO THE ENGINEER FOR SUBMITTAL TO THE CITY OF GARDEN CITY PRIOR TO FINAL ACCEPTANCE.
6. REFER TO ANTIOCH APARTMENTS PERMIT CONSTRUCTION DRAWINGS FOR FINAL GRADING.

LEGEND

- FIRE HYDRANT ASSEMBLY
- 8-INCH WATER MAIN, PIPE MATERIAL PER CITY STANDARDS
- WATER SERVICE WITH METER
- VARIOUS FITTINGS, TYPE PER PLAN, WITH THRUST BLOCK (TEE, 90°, 45°, 22-1/2°, 11-1/4°)
- GATE VALVE, SIZE PER PLAN

WATER KEYNOTES

1. CONTRACTOR SHALL LOCATE AND CONNECT TO EXISTING 8-INCH WATER MAIN (SEE GENERAL WATER NOTE No. 4).
2. 8-INCH MAINLINE, LENGTH AS LABELED, ALL WATER MAIN WITHIN 10 FEET OF PERMEABLE PAVERS SHALL BE DUCTILE IRON PIPE PER GARDEN CITY STANDARDS. NOTE: PIPE LENGTHS LABELED AS "C900" SHALL BE PVC C900 PER GARDEN CITY STANDARDS AND ALL OTHER NON-LABELED PIPE LENGTHS SHALL BE DUCTILE IRON PIPE PER GARDEN CITY STANDARDS.
3. 8-INCH FITTING, AS LABELED, MATERIAL PER CITY STANDARDS, WITH THRUST BLOCK PER ISPWC SD-403.
4. 8-INCH GATE VALVE, VALVE BOX AND LID PER ISPWC STD DWG SD-406.
5. FIRE HYDRANT ASSEMBLY PER ISPWC STD DWG SD-404.
6. DOMESTIC WATER SERVICE: SINGLE 2-INCH WATER SERVICE CONNECTION WITH 2-INCH WATER METER PER ISPWC SD-402 , FUTURE SERVICE EXTENSION TO BUILDING PER ANTIOCH APARTMENTS PERMIT CONSTRUCTION DRAWINGS.
7. FIRE SERVICE: 8"x6" TEE AT WATER MAIN WITH THRUST BLOCK PER ISPWC STD DWG SD-403, INSTALL 6-INCH GATE VALVE & VALVE BOX PER ISPWC STD DWG SD-406, INSTALL 6-INCH PVC C900 STUB (TO 5 FEET FROM FUTURE BUILDING) & CAP WITH THRUST BLOCK, FUTURE FIRE SERVICE EXTENSION TO BUILDING PER ANTIOCH APARTMENTS PERMIT CONSTRUCTION DRAWINGS.
8. REMOVE EXISTING WATER MAIN. CONTRACTOR TO COORDINATE WATER SYSTEM MODIFICATIONS WITH CITY AND BOISE BIBLE COLLEGE TO MINIMIZE SERVICE DISRUPTION.
9. EXTENTS OF EXISTING WATER MAIN TO REMAIN AND TO BE REMOVED SHALL BE DETERMINED DURING CONSTRUCTION, CONTRACTOR SHALL SEARCH FOR EXISTING WATER SERVICE CONNECTION(S) TO EX BUILDING(S) TO WEST.
10. REMOVE EXISTING FIRE HYDRANT.
11. INSTALL BLIND FLANGE ON NORTH BRANCH OF EXISTING TEE.
12. INSTALL RESTRAINED CAP PER GARDEN CITY STANDARDS.

DAVID EVANS AND ASSOCIATES INC.
9175 W Black Eagle Dr.
Boise, ID 83709
208.900.9049

Minor Land Division Construction Drawings for:
BOISE BIBLE COLLEGE

WATER SYSTEM PLAN

8695 W MARIGOLD STREET, GARDEN CITY, IDAHO

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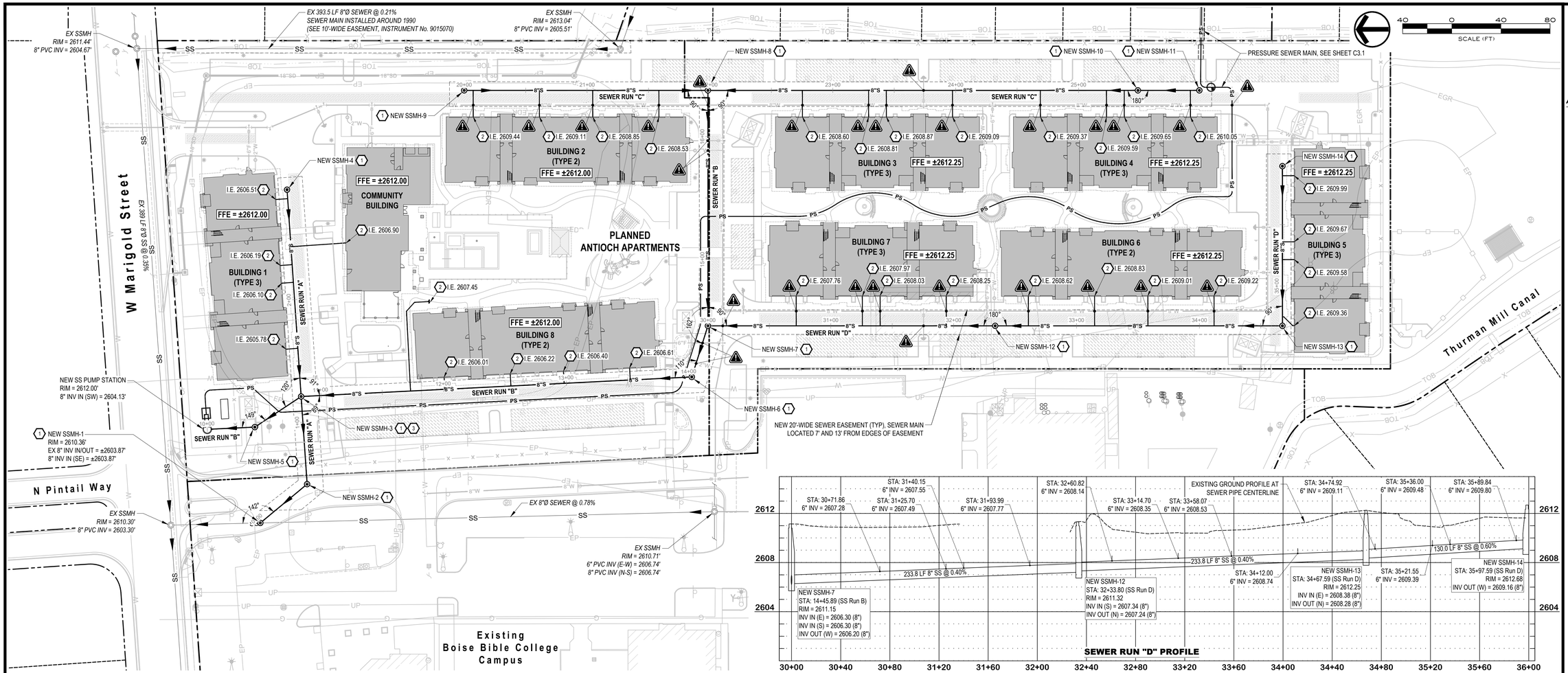
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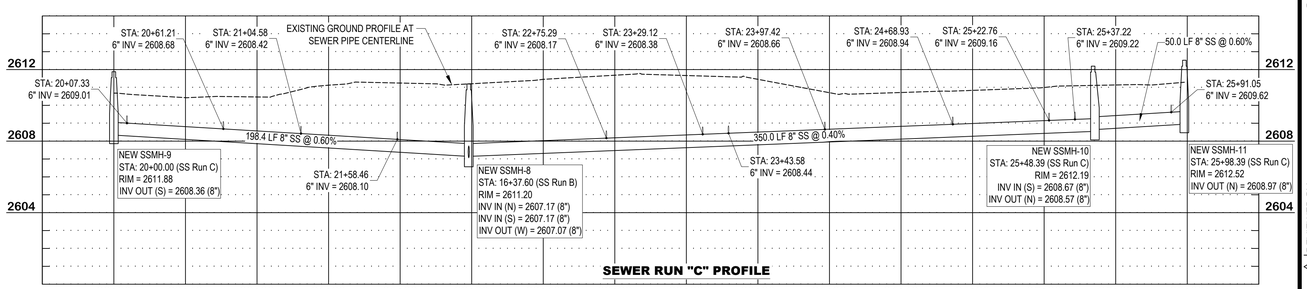
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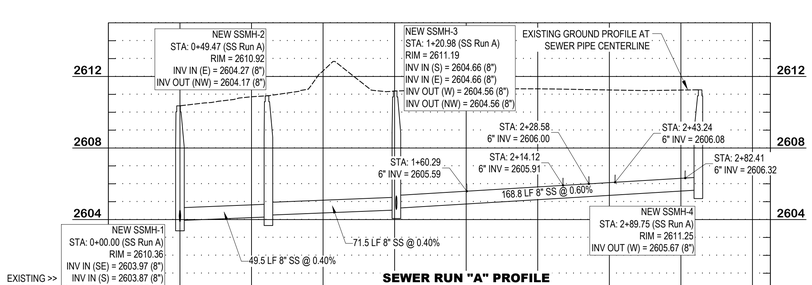
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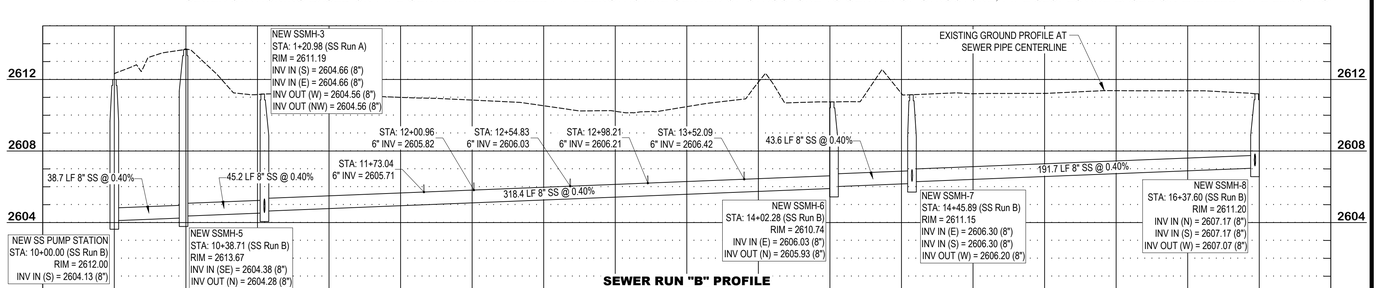
SEWER STATIONING BASED ON PIPE CENTERLINE. LABELED PIPE LENGTHS ARE CENTER OF STRUCTURE TO CENTER OF STRUCTURE, PIPE SLOPES ARE BASED ON LABELED PIPE LENGTHS.



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GENERAL GRAVITY SEWER NOTES

1. POTABLE / NON-POTABLE MAIN AND/OR SERVICE CROSSING: SEE GARDEN CITY STANDARD CONSTRUCTION NOTE No. 10 ON SHEET C0.1 FOR SEPARATION REQUIREMENTS.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT ADOPTED SPECIFICATIONS AND STANDARD DRAWINGS OF THE CITY OF GARDEN CITY AND THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC).
3. FINAL APPROVAL AND ACCEPTANCE OF ALL SEWER CONSTRUCTION WILL BE BY THE CITY OF GARDEN CITY.
4. RIM ELEVATION OF MANHOLES LOCATED OUTSIDE OF PAVED AREAS SHALL BE PLACED 18 INCHES ABOVE FINISHED GROUND (VIA GRADE RINGS).
5. CONTRACTOR SHALL FIELD VERIFY INVERT ELEVATION OF EXISTING SANITARY SEWER AT CONNECTION POINTS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO THE START OF SANITARY SEWER CONSTRUCTION.
6. RECORD INFORMATION SHALL BE MAINTAINED BY THE CONTRACTOR AND SUPPLIED TO THE ENGINEER FOR SUBMITTAL TO THE CITY OF GARDEN CITY PRIOR TO FINAL ACCEPTANCE.

LEGEND

- 8"S — 8-INCH SEWER MAIN
- SEWER SERVICE
- SEWER MANHOLE

GRAVITY SEWER KEYNOTES

1. STANDARD MANHOLE TYPE A PER ISPWC STD DWG SD-501; STANDARD MANHOLE COVER AND FRAME PER ISPWC SD-507; AND MANHOLE COLLAR PER ISPWC SD-508. STANDARD MANHOLE PRECAST BASE TYPE A PER ISPWC STD DWG SD-501A.
2. STANDARD SEWER SERVICE CONNECTION FOR NEW DEVELOPMENT PROJECTS PER ISPWC STD DWG SD-511A. EXTEND 6-INCH PVC ASTM D3034, SDR 35 TO BUILDING POINT OF CONNECTION (POC) OR STUB LOCATION PER PLAN, COORDINATE BUILDING POINT OF CONNECTION & MINIMUM DEPTH BELOW FINISHED FLOOR WITH ANTIOCH APARTMENTS PLUMBING PLANS. SEWER STUB(S) TO BE MARKED PER ISPWC STD DWG SD-512 & SHALL REMAIN IN PLACE DURING CONSTRUCTION AND FOR FINAL INSPECTION.
3. MANHOLE PRECAST BASE (PER KEYNOTE No. 1 ABOVE) SHALL INCLUDE 8-INCH CHANNELING FOR FUTURE GRAVITY CONNECTION TO NORTHWEST. CHANNEL SHALL BE FILLED WITH WEAK GROUT THAT CAN BE EASILY REMOVED IN THE FUTURE (UPON DECOMMISSIONING OF SEWER PUMP STATION).

NOTE: THE SEWER MANHOLE RIM ELEVATIONS SHOWN WILL BE REVISED UPON FINAL SITE GRADING.

DAVID EVANS AND ASSOCIATES INC.
9175 W Black Eagle Dr.
Boise, ID 83709
208.900.9049

Minor Land Division Construction Drawings for:
BOISE BIBLE COLLEGE

GRAVITY SEWER PLAN & PROFILE

8695 W MARIGOLD STREET, GARDEN CITY, IDAHO

DATE: | NO. | REVISION | DATE | BY | CK
REVIEWED BY:

CITY PERMIT

PROFESSIONAL ENGINEER REGISTERED 12645 STATE OF IDAHO BRYAN APPLEBY
9/25/26

CHECKED BY: SS
DESIGNED BY: BA
DRAWN BY: BA

DATE: 9/25/2026

PROJECT NO.
REND00000015

SHEET NO.
C3.0

Plot Date: 9/24/2026 4:41 PM
Save Date: 9/24/2026 4:23 PM
By: Bryan Appleby
By: Brad
File: P:\RREND\00000007\0400\CAD\06 Plan And Detail Sheets\Antioch Apartments -- Plan Sheets.dwg

PRESSURE SEWER PLAN

SCALE (FT): 50 0 50 100

AN EXISTING PERPETUAL BLANKET PUBLIC UTILITY EASEMENT OVER ALL PRIVATE STREET COMMON LOTS WAS CREATED WITH THE WILLOWBROOK ESTATES SUBDIVISIONS No. 2 & No. 3 PLATS

Willowbrook Estates Subdivision No. 3

Willowbrook Estates Subdivision No. 2

W Oasis Dr. (private)

W Echo Falls Ln. (private)

W Clubhouse Ln. (private)

Willowdale Dr.

Willowdale Dr. (private)

W Marigold Street

N Pintail Way

8549 N Willowbrook Dr. Lot 51 Block 2

EXISTING DUAL WATER METER (TYP AT METERS ON SHARED LOT LINES)

EXISTING 4"Ø SEWER SERVICE (TYP ALL LOTS)

EX SSMH RIM to 8" SS INV = 3.52'

EX SSMH RIM to 8" SS INV = 3.53'

EX SSMH RIM to 8" SS INV = 3.58'

EX SSMH RIM to 8" SS INV = 3.31'

EX SSMH RIM to 8" SS INV = 3.30'

EX SSMH RIM to 8" SS INV = 3.52'

EXISTING 10'-WIDE PUBLIC UTILITY, IRRIGATION & DRAINAGE EASEMENT (ALL LOTS BORDERING PRIVATE STREETS)

PLANNED 5'-WIDE PUBLIC UTILITY EASEMENT

EXISTING 10'-WIDE IRRIGATION & DRAINAGE EASEMENT

EX DRAINAGE CULVERT

EX DRAINAGE DITCH

APPROXIMATE BORE PIT LOCATION

NEW PRESSURE SEWER MAIN TO BE PLACED IN A SLEEVE WITHIN WILLOWBROOK ESTATES SUBDIVISION NO. 2 & No. 3

WATER MAIN, SEE SHEET C2.1

NEW SS PUMP STATION
STA: 0+00.00
RIM = 2612.00'
8" INV IN (SW) = 2604.13'

8" SS @ 0.40%

NEW GRAVITY SEWER MAINLINE TO SERVE APARTMENT BUILDINGS, SEE SHEET C3.0

Existing Boise Bible College Campus

GENERAL PRESSURE SEWER NOTES

1. POTABLE / NON-POTABLE MAIN AND/OR SERVICE CROSSING: SEE GARDEN CITY STANDARD CONSTRUCTION NOTE No. 10 ON SHEET C0.1 FOR SEPARATION REQUIREMENTS.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT ADOPTED SPECIFICATIONS AND STANDARD DRAWINGS OF THE CITY OF GARDEN CITY AND THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC).
3. FINAL APPROVAL AND ACCEPTANCE OF ALL SEWER CONSTRUCTION WILL BE BY THE CITY OF GARDEN CITY.
4. CONTRACTOR SHALL FIELD VERIFY INVERT ELEVATION OF EXISTING SANITARY SEWER AT CONNECTION POINTS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO THE START OF SANITARY SEWER CONSTRUCTION.
5. RECORD INFORMATION SHALL BE MAINTAINED BY THE CONTRACTOR AND SUPPLIED TO THE ENGINEER FOR SUBMITTAL TO THE CITY OF GARDEN CITY PRIOR TO FINAL ACCEPTANCE.

LEGEND

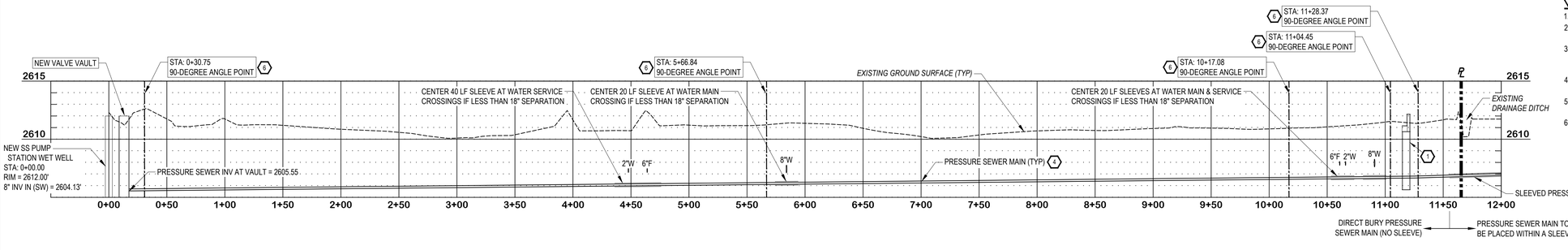
- PS — PRESSURE SEWER MAIN, SIZE PER PLAN
- PS — SLEEVED PRESSURE SEWER MAIN
- PRESSURE SEWER CLEANOUT

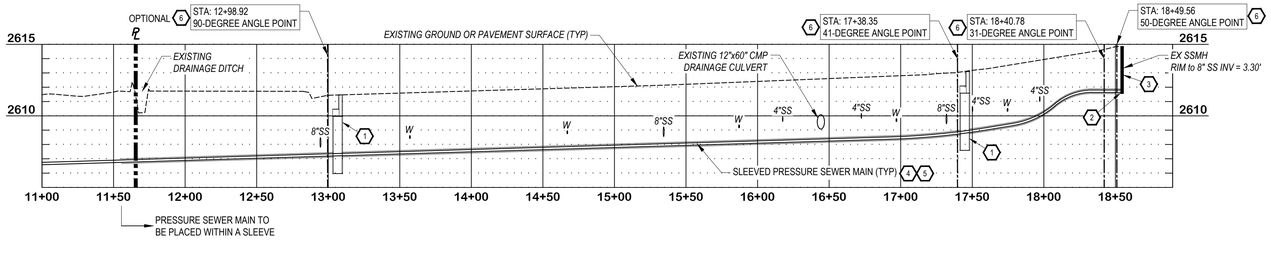
PRESSURE SEWER KEYNOTES

1. PRESSURE SEWER CLEANOUT PER ISPWC SD-515
2. CORE DRILL THROUGH SIDE WALL. PRESSURE SEWER MAIN TO DISCHARGE HORIZONTALLY TO EXISTING SEWER MANHOLE CHANNEL.
3. COAT ENTIRE INTERIOR CONCRETE SURFACE OF MANHOLE AND ANY GRADE RINGS WITH A TOTAL OF 80 MILS OF SPRAYED "SPRAYROQ" IN TWO EQUAL COATS.
4. 4-INCH POLYETHYLENE (PE) PIPE FORCE MAIN PER ISPWC SECTION 505, SECTION 2.3.A.
5. 6-INCH POLYETHYLENE (PE) PIPE SLEEVE PER ISPWC SECTION 505, SECTION 2.3.A.
6. THERMAL BUTT-FUSED WELDED POLYETHYLENE (PE) PIPE FITTING PER ISPWC SECTION 505, SECTION 2.3.A, ANGLE PER PLAN.

PRESSURE SEWER PROFILE

HORIZONTAL SCALE (FT): 0 50 100
VERTICAL SCALE (FT): 0 5 10





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BOISE BIBLE COLLEGE

PRESSURE SEWER PLAN & PROFILE

8695 W MARIGOLD STREET, GARDEN CITY, IDAHO

NO.	REVISION	DATE	BY	CK

CITY PERMIT

PROFESSIONAL ENGINEER REGISTERED 12645 STATE OF IDAHO BRYAN APPLENT
9/25/26

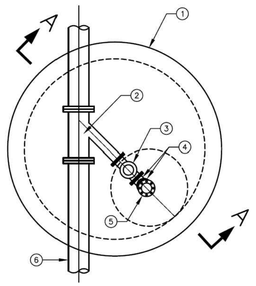
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DESIGNED BY: BA
DRAWN BY: BA

DATE: 9/25/2026

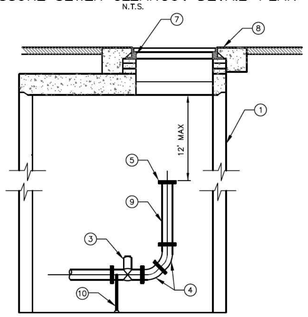
PROJECT NO.
REND00000015

SHEET NO.
C3.1

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By: Brap
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PRESSURE SEWER CLEANOUT DETAIL–PLAN
N.T.S.



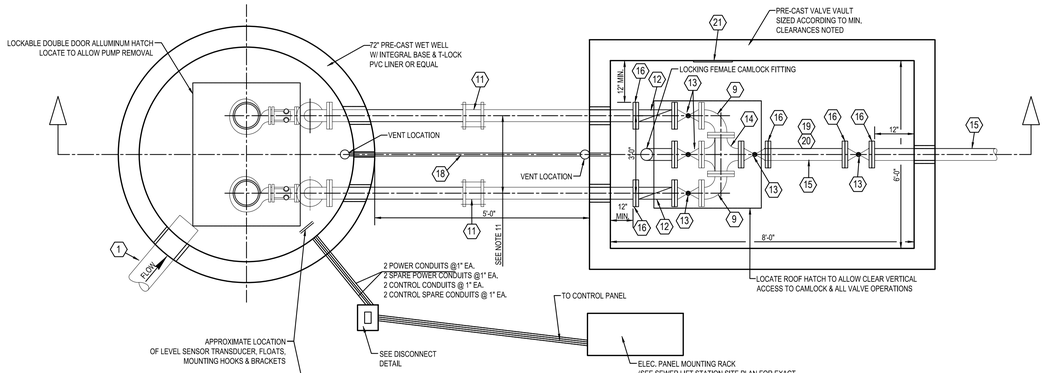
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N.T.S.

LEGEND

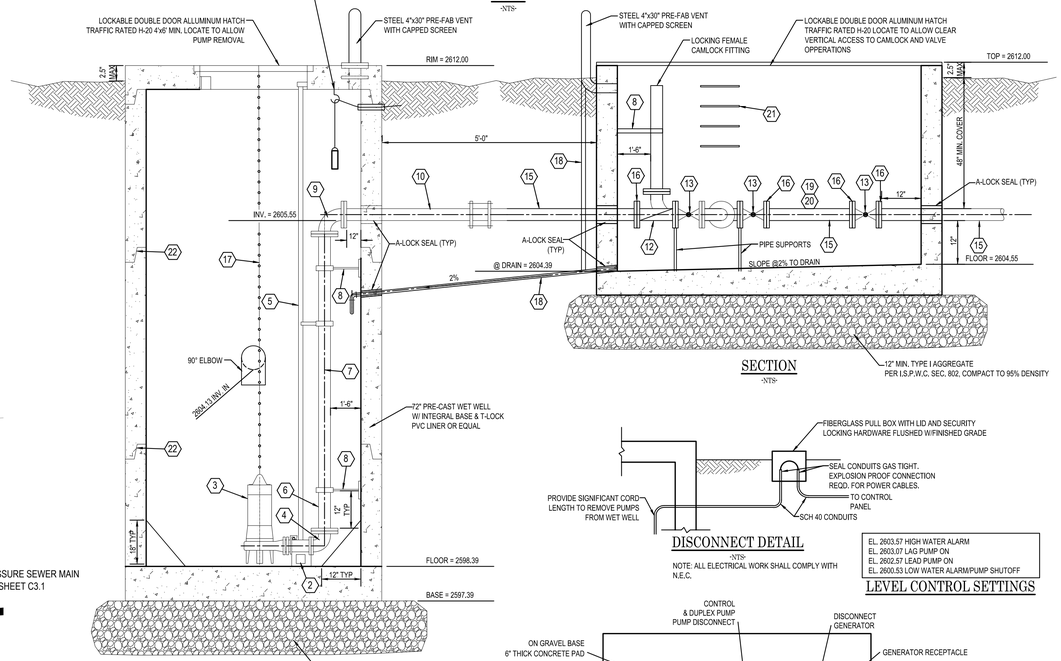
1. 6'–0"ø PRECAST CONCRETE MANHOLE.
2. "X"x4" MJxMJxFLG 45° WYE W/RESTRAINT.
3. 4" PLUG VALVE FLGxFLG.
4. 4" 45° FLGxFLG ELBOW.
5. 4" BLIND FLANGE.
6. "X" PRESSURE SEWER.
7. STANDARD MANHOLE RING AND COVER.
8. FINISHED GRADE.
9. 4" FLGxFLG DI SPOOL.
10. PIPE SUPPORT.

2020

IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION	PRESSURE SEWER CLEANOUT	STANDARD DRAWING NO. SD–515



WET WELL & DUPLEX PUMP STATION PLAN
-NTS-

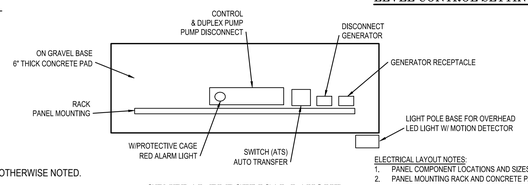


SECTION
-NTS-

DISCONNECT DETAIL
-NTS-
NOTE: ALL ELECTRICAL WORK SHALL COMPLY WITH N.E.C.

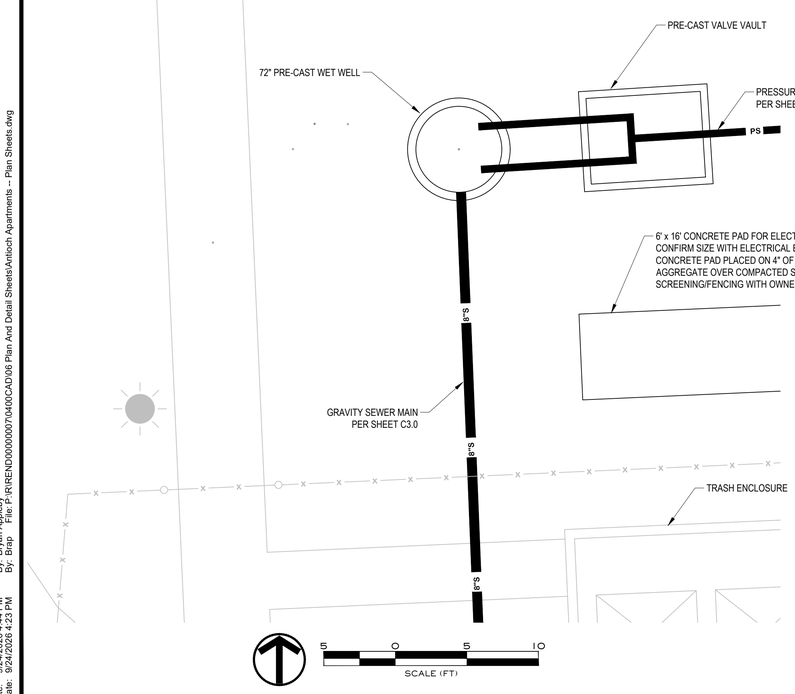
EL. 2603.57 HIGH WATER ALARM
EL. 2603.07 LAG PUMP ON
EL. 2602.57 LEAD PUMP ON
EL. 2600.53 LOW WATER ALARM/PUMP SHUTOFF

LEVEL CONTROL SETTINGS



GENERAL ELECTRICAL LAYOUT
-NTS-

ELECTRICAL LAYOUT NOTES:
1. PANEL COMPONENT LOCATIONS AND SIZES VARIES.
2. PANEL MOUNTING RACK AND CONCRETE PAD ARE SIZED ACCORDING TO THE ACTUAL SIZE OF THE PANELS.
3. METER BASE AND MAIN SERVICE ENTRANCE RATED DISCONNECT ARE LOCATED IN BUILDING. COORDINATE WITH ARCHITECT.



PUMP STATION PLAN

EQUIPMENT LIST:
ALL FITTINGS ARE AWWA DUCTILE IRON UNLESS OTHERWISE NOTED.

1. GRAVITY SEWER INLET PIPE.
2. BASE FOR DISCHARGE ELBOW. ANCHOR BASE TO WET WELL FLOOR.
3. DUPLEX SUBMERSIBLE PUMP (2 PUMPS) WITH SOFT START.
4. DISCHARGE ASSEMBLY.
5. STAINLESS STEEL GUIDE RAIL AND SUPPORT (ONE PER PUMP).
6. ECCENTRIC CONE (FL x FL), AS NEEDED.
7. SPOOL (FL x FL).
8. STAINLESS STEEL SUPPORT.
9. LONG RADIUS ELBOW (FL x FL).
10. SPOOL (FL x PE).
11. COUPLING ADAPTER. USE ROMAC STYLE RC501 OR EQUAL, AS NEEDED.
12. CHECK VALVE (FL x FL).
13. PLUG VALVE (FL x FL).
14. CROSS (FL x FL).
15. SPOOL (PE x PE).
16. FLANGE ADAPTER BY EBAA IRON SERIES 1000 OR EQUAL.
17. STAINLESS STEEL LIFTING CHAIN ASSEMBLY.
18. 2-INCH SCHEDULE 80 PVC VAULT DRAIN WITH BALL VALVE AND CURB STOP VALVE BOX AT FINISHED GRADE.
19. FUTURE SPOOL, AS NEEDED.
20. FLOW METER, AS REQUIRED. ELECTROMAGNETIC FLOW METER BY KROHNE "OPTIFLUX 2000" OR EQUIVALENT. UNIT SHALL BE EQUIPPED WITH KROHNE "OPTIFLUX IFC 300" SIGNAL CONVERTER.
21. PLASTIC COATED STEPS PER ISPWC SD-509. INSTALL STEPS DIRECTLY BELOW ACCESS HATCH.
22. INTERIOR OF WET WELL SHALL BE LINED WITH "T-LOCK" OR EQUAL. SECTIONS SHALL BE JOINT WITH "VULKEM" AND MASTIC WRAP TO PROVIDE 100% WATER TIGHT.

GENERAL NOTES

1. VALVE VAULT IS APPROXIMATELY 6'W x 8'L AND SIZED ACCORDING TO CLEARANCES NOTED.
2. SEE SEWER LIFT STATION SITE PLAN FOR ACTUAL LOCATION.
3. ALL DUCTILE IRON FITTINGS ARE AWWA C110 UNLESS OTHERWISE NOTED.
4. ALL DUCTILE IRON PIPE ARE AWWA C151 UNLESS OTHERWISE NOTED.
5. MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LATEST OF THE ISPWC, SECTION 505 FOR PRESSURE SEWERS.
6. ALL PIPE PENETRATIONS THROUGH WET WELL WALL SHALL BE WATERTIGHT. SEALOFFS ON THE PANEL SIDE ARE REQUIRED ON ALL CONDUITS LEAVING THE WET WELL.
7. INSTALL PUMP GUIDE RAILS AND SUPPORTS TO WET WELL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
8. ALL ANCHOR BOLTS AND SHIMS SHALL BE STAINLESS STEEL.
9. ALL METAL IN WET WELL SHALL BE STAINLESS STEEL.
10. ALL VAULTS AND WET WELL SHALL BE WATERTIGHT WITH HS-20 RATED LOADING.
11. FORCE MAIN SEPARATION DETERMINED BY VALVE VAULT ASSEMBLY. COORDINATE WITH PUMP RAIL MANUFACTURER FOR REQUIRED SEPARATIONS OF PUMP AND GUIDE RAIL.
12. CONTRACTOR SHALL DETERMINE ZIZE OF VAULTS REQUIRED TO ACHIEVE MINIMUM CLEARANCES SHOWN, BASED ON SPECIFIC COMPONENTS FURNISHED AND INSTALLED.
13. BELOW GRADE PVC CONDUITS SHALL BE USED OUTSIDE OF VAULTS FOR BRANCH CIRCUITS, LIFT STATION SITE ELECTRICAL, TELEMETRY, AND AUXILARY CIRCUITS. CONDUITS SHALL BE UL LISTED AND SHALL BE IN ACCORDANCE WITH NEC AND NEMA STANDARDS.
14. IF A PERMANENT POWER AND WATER SOURCE IS NOT AVAILABLE, CONTRACTOR SHALL PROVIDE A TEMPORARY POWER AND WATER AS NEEDED FOR TESTING OF NEW LIFT STATION.
15. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND SPECS TO GAIN APPROVAL FROM THE ENGINEER PRIOR CONSTRUCTION.
16. PUMPS, CONTROLS, PIPING, GUIDE RAILS, ACCESS COVER AND RELATED ITEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS.
17. ALL CONCRETE SHALL HAVE A 28 DAYS MINIMUM STRENGTH OF 2,500 PSI
18. LIGHTING SHALL BE MOUNTED ON A 15 FOOT POLE ADJACENT TO THE CONTROL PANEL AND SHALL BE OPERATED BY A WEATHER-PROOF MANUAL ONE WAY SWITCH. EXACT LOCATION TO BE DETERMINED.
19. PROVIDE A FROST-FREE YARD HYDRANT INSIDE THE PUMP STATION.
20. SEE PUMP STATION ELECTRICAL PLANS FOR LINE DIAGRAM, CONDUCTOR SIZING, CONTROL LAYOUT, TRANSFER SWITCH, DISCONNECT DETAILS, AND OTHER ELECTRICAL COMPONENTS.

ELECTRICAL PANEL AND CONTROL NOTES

1. PANEL EXTERIOR SHALL BE 12 GA. H.D. GALV. STEEL. PANEL INTERIOR SHALL BE 14 GA. COLD ROLLED STEEL ELECTRICALLY WELDED AND REINFORCED WHERE REQUIRED.
2. PANEL CONSTRUCTION SHALL BE NEMA 3R RATED, RAINTIGHT AND DUSTTIGHT.
3. ALL NUTS, SCREWS AND HINGES SHALL BE STAINLESS STEEL.
4. NUTS, BOLTS AND SCREWS SHALL NOT BE VISIBLE FROM OUTSIDE OF PEDESTAL.
5. PHENOLIC NAMEPLATES ARE REQUIRED ON PANELS.
6. CONTROL WIRING SHALL BE MARKED BOTH ENDS BY PERMANENT WIRE MARKER.
7. A PLASTIC COVERED WIRING DIAGRAM SHALL BE ATTACHED TO THE BACKSIDE OF THE PANEL FRONT DOOR.
8. PANEL ENCLOSURE SHALL BE FACTORY WIRED AND CONFORM TO THE REQUIRED NEMA STANDARDS.
9. STUB-OUT 2 EACH, 1" SCH. 40 CONDUITS FOR FUTURE FLOW METER.
10. COORDINATE WITH IPC TO PROVIDE POWER HOOK-UP AND METERING.
11. ALL ELECTRICAL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NEC, STATE CODES, AND BE U.L. LISTED.
12. PANEL SHALL BE 3-POINT PAD LOCKABLE LATCHES.
13. PROVIDE AN AUXILIARY POWER GENERATOR RECEPTACLE AND A AUTOMATIC TRANSFER SWITCH FOR A PERMANENT POWER GENERATOR HOOK-UP IN CASE OF EMERGENCY OPERATION.
14. ULTRASONIC LEVEL SENSOR SHALL BE MILTRONICS MULTIRANGER OR EQUAL.
15. SEE GENERAL ELECTRICAL LAYOUT FOR PANEL COMPONENT LOCATIONS.

EMEGENCY OPERATION NOTES

1. EMERGENCY PERMANENT POWER GENERATOR SHALL HAVE SUFFICIENT CAPACITY TO START-UP AND MAINTAIN THE TOTAL RATED RUNNING CAPACITY OF THE STATION. A LICENSED OPERATOR SHALL COORDINATE WITH ELECTRICAL ENGINEER AND PUMP MANUFACTURER FOR REQUIRED RATING.

ALARM AND TELEMETRY NOTES

1. PROVIDE REMOTE ALARM TRANSMISSION TO A LICENSED OPERATOR AS WELL AS AUDIO-VISUAL ALARMS ACTIVATION WITH BACKUP POWER SOURCE FOR POWER FAILURE, PUMP FAILURE AND HIGH WATER LEVEL. COORDINATE WITH OWNER FOR DIAL-OUT NUMBERS AND CONTACT INFORMATION OF A LICENSED OPERATOR.
2. ALARM AND TELEMETRY SYSTEM SHALL BE PROVEN TO FUNCTION AS REQUIRED, AFTER INSTALLATION AND BEFORE FINAL ACCEPTANCE BY THE OWNER.
3. PHONE LINE AND PEDESTAL FOR TELEMETRY SHALL BE PROVIDED FOR DIAL-UP ALARMS. COORDINATE WITH UTILITY COMPANY.

PUMP STATION DESIGN CONDITIONS

1. 4-INCH DIAMETER FORCE MAIN.
2. 127 GPM AT 34' TOTAL DYNAMIC HEAD (TDH).

DAVID EVANS AND ASSOCIATES INC.
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Minor Land Division Construction Drawings for:
BOISE BIBLE COLLEGE

SEWER PUMP STATION DETAILS

8695 W MARIGOLD STREET, GARDEN CITY, IDAHO

NO.	DATE	REVISION	BY	CK

REVIEWED BY:
DATE:

CITY PERMIT

PRELIMINARY NOT FOR CONSTRUCTION

CHECKED BY: SS
DESIGNED BY: BA
DRAWN BY: BA

DATE: 9/25/2026

PROJECT NO.
REND00000015

SHEET NO.
C3.2

Plot Date: 9/24/2026 1:44 PM By: Bryan Appleby
Save Date: 9/24/2026 4:23 PM By: Brad Pile P:\RREND\00000007\0400CAD\06 Plan And Detail Sheets\Antioch Apartments – Plan Sheets.dwg

PART I GENERAL

SCOPE:
The contractor shall furnish and install one automatic sewage duplex pumping station. The station shall be completed with a valve vault and a wet well. Valves and fittings equipment are installed in a concrete valve vault. Duplex submersible pumps, motors, and pump removal equipment are installed in a concrete wet well. Vault and wet well come with traffic rated H-20, lockable double door aluminum hatch access lid. The principal items of equipment shall include a duplex system with two submersible, non-clog, motor driven sewage pumps and removal equipment; valves; internal piping & fittings; pump motor disconnect boxes; automatic central duplex pump controller panel; and all internal wiring.

SUBMITTALS:
Equipment submittals shall contain drawings that cover the station with equipment and electrical control schematic. The drawing shall be to scale and be specific to this project and illustrate the National Electrical Code (NEC) clearance. The submittals data for approval including the following items:

- Pump curves and motor performance data showing operation points, NPSH, curve, BHP and efficiencies.
- Pump and motor testing reports including pump testing procedures and protocol.
- Pump shop drawings showing pump dimensions, weights, materials of construction and assembly.
- Wet well and valve vault equipment layout shop drawings showing equipment placement and piping configurations.
- Control diagram and data drawings.
- Equipment Operation and Maintenance Manuals including installation guides, start-up procedures, equipment storage recommendations and part list.
- Written copies of manufacturer's warranties on specified products and equipment.

QUALITY ASSURANCE:
Inspect, test, adjust and operate pumps motors and all related components in accordance with the manufacturer's recommendations at the factory prior to shipment.

The contractor is hereby notified that responsibility for the complete and satisfactory operation or function of all equipment and materials, is definitely a part of this contract, regardless of the manufacturer's guarantee on any item furnished. It is the contractor's responsibility to place all equipment in operation, furnish all lubrication, packing and other accessories necessary for initial operation, and to see that proper operating and maintenance instructions are prepared and followed.

MAINTENANCE SERVICE:
Furnish service and maintenance of all supplied lift station components 18 months from date of delivery.

WARRANTY:
The manufacturer shall guarantee the duplex pumping system to be free from defects in materials and workmanship for a period of one year from the date of start-up or for a period of 18 months from the date of shipment. All consumable parts such as pump seals, filters, light bulbs, oil, grease, etc., shall be considered part of routine maintenance and shall not be covered under the terms of the manufacturer's warranty.

PERFORMANCE REQUIREMENTS:
Each sewage pump shall be capable of delivering 127 gallons per minute of raw, unscreened wastewater against a total dynamic pumping head of 34 feet. The pumps shall have a specified rated speed and specified rated horsepower. All openings and passages shall be large enough to permit passage of a 3-inch diameter sphere and any trash or stringy material that can pass through a 3" diameter collection system. The pumps shall have an approved pumping efficiency at the design conditions.

A complete sewage lift station including all necessary appurtenances is required for a fully operable system. All equipment shall be assembled, wired, and tested for operable before acceptance by the Owner.

PART II MATERIALS

PRE-APPROVED EQUIVALENT:
Contractors shall prepare their bid on basis of particular equipment and materials that are specified in the specifications and on the engineering drawings. Award of contract shall constitute contractual obligation to furnish specified equipment and materials unless the contractor desires to execute the following procedures:

- Alternate equipment shall be considered if a full submittal package (6 copies) on the pump station is furnished to the engineer 14 days prior to the bid date and approved by the engineer in writing. The submittals shall include detailed information on the pump station components and scaled drawings specific of the station chamber, pumps, piping, and electrical. Alternate manufacturers not submitted and approved by the engineer 14 days prior to the bid date will not be considered.
- After execution of contract, substitution of equipment of makes other than those named in the contract shall be considered for one reason only; the equipment proposed for substitution is superior in construction and/or efficiency to that named in the contract and that high quality, low maintenance and satisfactory service have been demonstrated by at least 15 years of service in sewage lift station installations or equivalent. Such substitution request of superior products shall only be at the engineer's determination.
- In the event the contractor obtains engineer's approval on equipment other than that which was specified, contractor shall, at his own expense, make any changes in structures, wet well, valve vault or piping necessary to accommodate equipment.
- It will be assumed that cost to contractor of proposed equipment to be substituted is less than that of the equipment in the contract, and if a substitution is approved, the contract price shall be reduced by an amount equal to savings.

MAIN LIFT PUMPS:
The pump station shall be equipped with two submersible non-clog type sewage pumps. Each pump shall have capacities as listed under PERFORMANCE REQUIREMENTS.

The lift pumps shall be manufactured by ABS or approved equal with 1-phase, 115/230 volt, 60-hertz power supply.

Pump volutes, impellers, suction elbows, and motor stands shall be cast of high-density cast iron. Pump bases may be either of cast iron or fabricated steel. Pump shafts shall be high-grade steel, protected in the seal area by stainless steel sleeves. These sleeves shall be field replaceable.

A double mechanical seal shall seal the pump shaft against leakage. This seal shall have carbon and ceramic faces with stainless steel metal parts. The seal shall be pressurized with water filtered from the pump discharge, to maintain a higher pressure inside the seal than in the pump case. The filter shall be corrosion resistant and shall screen out all solids larger than 50 microns.

Each pump shall be equipped with an enclosed, non-clog type, two ports, cast iron impeller, statically and dynamically balanced. The impeller shall be securely fastened to the steel shaft. Pumps shall have inspection hand holes in the volutes and the suction elbows.

Stainless steel nameplate shall be attached to the pump and motor providing the manufacturer's model and serial number, rated capacity, head, speed and pertinent data.

Each pump shall be mounted to a guide rail system. A guide rail system is a quick disconnect system which allows the pump to be removed from the wet well without disturbing the discharging piping. The guide rail base is anchored to the wet well floor and the discharge piping is attached to it. A coupling bracket is attached to the discharge flange of the pump and allows the pump to slide up and down a guide rail pipe when being removed and installed.

MOTORS:
Motor shall have specified horsepower, R.P.M., 1 phase, 60 hertz, 115/230 volt. Motors shall be NEMA Design B with Class B insulation, 40 degrees C ambient, and a 1.15 service factor. Motors shall be manufactured by nationally recognized manufacturers, and shall be available through local motor suppliers.

Each motor shall be supplied with a NEMA 1 115/230 volt, 1-phase disconnect switch. Each disconnect switch shall be non-fused pad lockable and meet UL and NEC requirements.

CERTIFIED PUMP TESTS:
The pumps shall be tested at the manufacturer's plant before shipment. The tests shall consist of checking the unit at the specified rated speed, capacity, efficiency, brake horsepower and at such other conditions of head and capacity to properly establish and provide a certified performance curve. The standards of the Hydraulic Institute shall govern the procedures and calculations for these tests. The tested pumps not using the Hydraulic Institute Standards will not be accepted.

PIPING, VALVES & FITTINGS:
The pump suction lines shall be 4-inch ductile iron pipe, terminating outside the wet well with plain ends. The discharge line from each pump shall include a 4-inch iron body, bronze mounted check valve (increasing swing check valves are not acceptable) and a 4-inch resilient wedge gate plug valve. The check valves shall have external levers and springs to allow for back flushing of the suction lines. The common discharge line shall be 4-inch ductile iron pipe and include setup for a future flow meter with isolation valve. The common discharge pipe shall be terminating outside the valve vault with a plain end.

The isolation valves used shall be a non-rising stem resilient wedge gate valve. The valve shall conform to the latest revision of AWWA Standard C-509 covering resilient seated gate valves. The wedge shall be of cast iron completely encapsulated (except for guide and stem nut areas) with polyurethane rubber. The polyurethane sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM tests for rubber to metal bond ASTM D429. Stems shall be cast bronze with integral collars. The stuffing box shall be the O-ring seal type with two rings located above thrust collar; the two rings shall be replaceable with valve fully open and subject to full rated working pressure. There shall be two low torque thrust bearings located above and below the stem collar. The stem nut shall be independent of wedge and shall be made of solid bronze. There shall be a smooth unobstructed waterway free of all pockets, cavities and depressions in the seat area.

The flanged check valves shall be of swing type and meet the material requirements of AWWA specifications C508. The valve shall be iron body, bronze mounted, single gate for non-shock working pressure of 175 psi and hydrostatically tested at double the working pressure. The valve shall be furnished with outside lever and spring or outside lever and weight. The check valves shall have a stainless steel hinge pin. The hinge pin shall operate in bronze support bearings.

Magnetic meters shall be flange connected and shall utilize the principle of electromagnetic induction to produce an output proportional to the fare of fluid flow. A set of pulsed DC, electrically powered coils shall generate magnetic fields in which in turns induces a voltage in the flowing fluid which then sensed by a pair of electrodes in contact with the fluid.

An adjustable mercury float switch shall be provided to sense a high water level condition in the wet well. The switch shall be connected to the pressure transducer and shall activate a contact to indicate the high water condition.

SPARE PARTS:
Spare parts shall be provided as per manufacturer's recommendations. One set of all specialty tools required for normal operation and maintenance shall be provided. All tools shall be furnished in a suitable steel tool chest. All spare parts shall be properly protected for long-term storage and packed in containers, which are clearly identified. The follow spare parts shall be provided:

- A complete spare double mechanical pump seal assemblies shall be provided with the pump station.
- A pump volute gasket and a seal water filter cone for each pump.
- Twelve-month supply of all required lubricants.

WIRING:
Wiring of the pump station shall be in accordance with the National Electrical Code (NEC). All internal wiring shall be run in conduit, and conduit shall be run up the wet well to receive power entrance and auxiliary wiring. An SLB fitting shall be provided on the inside of the tube, and shall terminate with a threaded nipple. The pump station interior shall be completely wired in the field, including power entrance wiring and external connections. The pump station shall be provided with a 120/240 volt, single-phase, 3-wire service by the utility company. The pumps shall be wired for 115/230 volt, 3-wire, single-phase power. Other miscellaneous loads such as controls, communications, maintenance outlets, lighting, etc. shall be wired for 120/240 volt, 3-wire, single-phase power.

The 120-volt electrical equipment shall be supplied with suitable lengths of 600 volt, #14 AWG 2-wire plus ground rubber covered cord, and shall plug directly into electrical outlets. These outlets shall be identified with engraved laminated plastic nameplates. One duplex outlet shall be provided on the side of the control panel for operation of 115-volt hand tools, lights, etc.

All wiring in the control panel shall be color-coded. All wiring from the control panel to the junction boxes adjacent to the served electrical equipment shall be in conduit. Short leads of flexible polyvinyl covered steel conduit, with compatible grounding fittings, shall be used between the junction boxes and the pump motors. All conduit and wires shall be adequately sized for the maximum anticipated loads. All conduits shall be neatly arranged and securely clamped to slotted steel channel, welded to the pump station structure.

CONTROL PANEL & SYSTEM:
The power distribution center and electrical controls shall be mounted in a common NEMA Type 1 fabricated steel enclosure. The enclosure shall have a full opening door, mounted on heavy piano hinges. Suitable type latching devices shall be provided on the door. Starters, breakers, relays, timers and wiring raceway shall be neatly arranged on a removable steel back plate. All circuit breaker operators, selector switches, indicating lights, and single phase items shall be mounted on or through die cut openings in the enclosure door. A duplex grounding type convenience outlet shall be mounted in die cut openings on the side of the enclosure, for operation of 120-volt devices. It shall not be necessary to open this enclosure, except for adjustment of controls. Additional enclosures may be used as necessary to meet power and control requirements.

Properly sized, heavy duty, molded case thermal-magnetic air circuit breakers shall be provided for branch circuit disconnect service and for over-current protection of all control, motor and auxiliary circuits.

The control panel shall conform to the National Electrical Code specifications and shall be UL listed and labeled in accordance with UL standard No. 508 for Industrial Control Panels. In accordance with U.L. procedures, a U.L. label shall be affixed to the control panel.

Properly sized open frame, across the line, NEMA rated magnetic motor starters shall be provided for the pump motors. Motor starters will be provided with these standard features; dual voltage, dual frequency coils, overload test feature, front removable auxiliary interlocks, straight through wiring with large silver cadmium contacts which are easily replaceable without removing starter from its mounted position. All NEMA rated starters will be provided with a solid state overload block which provides under voltage and overload protection, true phase loss protection; and trips within 3 seconds. Overload is self protected against short circuits, is self-powered and requires no hard wiring or separate power source. Starters will be U.L. listed 508 and CSA certified.

An automatic alternator shall be provided to change the sequence of operation of the pumps upon completion of each pumping cycle. The alternator shall be provided with an on/off switch. The alternator shall be Syrelec PJRS Alternator.

To protect the electrical system and equipment from damage due to excessive line surges caused by lightning or other circuit disturbances, a secondary surge arrester shall be supplied with the pump station controls. The arrester shall comply with ANSI standard C62.11-1987. The arrester shall be available in a one-pole, two-pole or three-pole version, and be suitable for both indoor and outdoor use. The arrester shall be permanently sealed in a LEXAN housing. The arrester shall have a maximum continuous operating voltage rating of 650 volts rms. The permissible line-to-line voltage of the system to which the arrester is applied depends on the circuit configuration, grounding, and voltage regulation. The secondary surge arrester shall be a SDSA1175 for single phase applications.

For water level indication in the dry well, a direct acting level float switch shall be provided. The level switch stem, float, mounting and other wetted accessories shall be all CPVC. The float switch shall have polyurethane foam resin body, encapsulating a mercury tube switch. The float switch shall be rated 20 amps at 115-volts with a type SJO power cord. The electrical termination shall be 18 gauge PVC jacketed lead wires. The sensor shall be supplied with a ¼" NPT connection, have an operating temperature of -40 degrees F to +180 degrees F and a PSI pressure maximum of 15. The switch shall be recognized under File #E45168.

Each check valve shall be supplied with a limit switch for pump fail indication. The limit switch be mounted on and activated by the external arm of the discharge check valve of each pump to detect failure of the pump to deliver normal operation flow. An auxiliary time delay relay shall be provided to provide an alarm signal and shut pump down when pump fail occurs.

Six-digit, non-resettable elapsed time meters shall be provided to record the running time of each pump motor. These devices shall be mounted in die cut openings in the enclosure door.

To control the operation of the sewage pumps, in response to variation in sewage level in the wet well, a solid state electronic pump control system shall be provided and installed in the duplex pump control panel. The multi-purpose level transmitter system shall be a microprocessor based echo-time measuring type providing an electronic output signal proportional to the level of material, space, volume, flow or differential as may be required. It shall consist of a transmitter and one transducer. The level transmitter shall be Siemens MultiRanger 200 or approved equivalent.

The operating principle shall be as follows: acoustic impulses emitted from an ultrasonic transducer are reflected back from the material surface and are received by the transducer. The transit time of pulse travel from the generation to echo is measured. The elapsed time is proportional to the distance between the transducer face and material surface.

The primary sensor shall be an acoustic transducer and shall contain a polarized Zirconium crystal with acoustic impedance matching face and transformer. The range of the transducer shall be 1 to 33 feet. The transducer shall be permanently mounted at the measuring site and shall be installed in accordance with the manufactures recommendations. The power to operate the transducer shall come solely from the transmitter over the signal interconnection cable.

The transmitter enclosure shall be a NEMA 4X polycarbonate, the power supply shall be 120 VAC@ 60HZ, the power consumption shall be 15 VAm. All parameters and commands shall be entered in a removable infrared keypad from outside the enclosure without opening the enclosure. The transmitter shall process all echoes from stored memory that is continually updated after echo enhancement. The echoes shall be processed comparing returns for largest echo, tallest echo spike and first echo returned. The patented Sonic Intelligence shall compare the various returns and select the echo with the greatest confidence factor. There shall be no internal potentiometers or switches used in programming or adjusting the transmitter.

The transmitter and transducer performance range shall be 1 to 33 feet: accuracy shall be +/- 0.25% or range or 2mm, whichever is greater; resolution shall be 0.1% of range: and the maximum separation between transmitter and transducer shall be 1200 feet. Indication display shall be a 4 digit LCD with 0.7-inch high characters. It shall also have individual alarm status lights. The level controller shall be a Siemens MultiRanger 200 with a Siemens Milltronics transducer.

The level control system shall operate the pumps as follows: Each pump shall have it's own individual start and stop set points. The lead pump shall be started when the liquid level in the wet well reaches a predetermined elevation. The lag pump shall be stared in parallel with the lead pump when the liquid level in the wet well reaches an elevation above the lead pump on elevation. Upon decrease in wet well level both the pumps shall be shut down simultaneously. Pumps shall then stop, allowing the wet well to refill to normal operating level. Normal pump control, as described above, shall restart. The lag start relay must be separated with dry contacts.

The level control system shall incorporate a backup/override float system. A high and low level float shall be provided above and below the programmed set points of the Level Controller. The floats shall be connected to intrinsically safe barriers. When the high level float is raised this shall call either pump to run. If the high level float remains on for thirty seconds, the lag pump shall be called. The pumps shall continue to run until the low level float is reached.

SCADA RTU CAPABILITY (FOR FUTURE USE):
Optional item for the Owner to provide a panel to be installed on the panel mounting frame by the contractor. The panel shall be setup for a future SCADA RTU. The panel is size is 24" tall by 24" wide by 7" deep).

The pump control panel shall have the following I/O contacts for future interface capability with the SCADA RTU:

- High wet well water alarm
- Lead pump failure
- Lead pump running
- Lag pump running
- Wet well levels
- Reserved slots for future use

FACTORY TEST:
The pumps shall be operationally tested at the manufacturer's plant before shipment. This test shall include capacity, head, amperage draw and R.P.M. checks at various points along the pump curve.

PART III WORKMANSHIP

INSTALLATION AND SERVICE INSTRUCTIONS:
Installation of the pumps and equipment shall be in accordance with the written installation instructions furnished by the manufacturers. In addition to these installation instructions, the manufacturers shall furnish six complete and detailed Operation and Maintenance manuals. These manuals shall cover the initial start-up, operating procedures, maintenance and servicing procedures on the major components in the pump station. Manuals shall be supplied directly to the contractor.

FIELD REPRESENTATIVE:
The manufacturer and supplier shall employ qualified competent field personnel to review the installation, testing and start-up of the lift station equipment. All testing shall perform by the installation contractor. As part of this installation contract, the services of a field representative supplying the pumping equipment and lift station shall supervise the installation and start-up of all the equipment. After installation and before start-up, the field representative shall realign all pumps and motor shafts with the manufacturer's specifications. The field representative shall remain on the job until each pump has operated satisfactorily.

LUBRICANTS:
The manufacturer shall furnish all necessary oils, lubricants, grease guns, or other necessary applicators and shall lubricate the mechanical equipment prior to initial operation. The grade of oil and grease furnished by the manufacturer shall be in accordance with the recommendation of the equipment manufacturer. The manufacturer shall supply a 12-month supply of each lubricant.

START-UP SERVICES:
The manufacturer shall provide the services of a factory-trained representative to assist the contractor with the initial start-up of the pump station. It shall be the responsibility of the contractor to inform all parties of this initial start-up, and to insure their attendance. The manufacturer's representative shall instruct all personnel attending the start-up in the correct and required operation, maintenance and service procedures for the pump station including motors and other lift station components.

The manufacturer's field representative shall analyze the complete pump and piping system and recommend such supports and modifications as necessary to eliminate harmonics and vibration in the system when operated over the operational speed range. Pump bases and foundations shown on the plans shall be modified and enlarged as necessary to provide adequate support and vibration control. A certified vibration test is required with a detailed report of results.

The manufacturer's field representative shall perform hydraulic testing for each pump verifying performance on the pump curve. Data shall include flow measurement and discharge pressure at three different operation points for each pump.

PUMP OPERATION:
Starting from a low wet well and neither pump operating, the pump operation sequence shall be as follows:

- When the wet well rises to a preset lead pump "ON" level, an electrical signal provides power to the controller causing the lead pump to turn on
- If the capacity of the lead pump is greater than the flow into the wet well, as the wet well level continues to drop
- If the flow into the wet well increases beyond the capacity of the lead pump operating alone at maximum speed, a high level electrical signal shall start the lag pump which shall pump up to full speed
- Both pumps operating will then pump the wet well down to the pumps "OFF" level, stopping both pumps and completing the pumping cycle. This process will repeat itself as the wet well liquid level rises.

DAVID EVANS AND ASSOCIATES INC.
9175 W Black Eagle Dr.
Boise, ID 83709
208.900.9049

Minor Land Division Construction Drawings for:
BOISE BIBLE COLLEGE

PUMP SYSTEM SPECIFICATIONS

8695 W MARIGOLD STREET, GARDEN CITY, IDAHO

NO.	DATE	REVISION	BY	CK
1	REVIEWED BY:		DATE:	

CITY PERMIT

PRELIMINARY NOT FOR CONSTRUCTION

CHECKED BY: SS
DESIGNED BY: BA
DRAWN BY: BA

DATE: 9/25/2026

PROJECT NO.
REND00000015

SHEET NO.
C3.3

Plot Date: 9/24/2026 4:44 PM
Save Date: 9/24/2026 4:23 PM
By: Bryan Appleby
By: Bryan
File: P:\RENDO0000015\04000CAD\06 Plan And Detail Sheets\Antioch Apartments – Plan Sheets.dwg

Company: David Evans and Associates, Inc.
Prepared by: Ken Nguyen
11/14/2025

Antioch Apartments Lift Station Sewer Force Main Calculations

TDH (Total Dynamic Head) = Static Head + Friction Loss + Minor Losses

FRICTION LOSS (HAZEN-WILLIAMS EQUATION)

$h_f=(3.022*V^{1.85}L)/(C^{1.85}*D^{1.17})$

Constants

V (ft/s) = velocity L (ft) = Length D (ft) = Pipe Diameter

C = 120 PVC

PIPE SIZE

	3	4
AREA (ft^2)	0.05	0.09
DIA. (ft)	0.25	0.33

MINOR LOSSES

		3		4	
SIZE	QTY.	EQ. LEN.	TOTAL	EQ. LEN.	TOTAL
GATE VALVE	3	2.6	7.8	2.8	8.4
90 DEG. BEND	3	2.7	8.1	3.4	10.2
45 DEG. BEND	0	1.7	0	2.6	0
CHECK VALVE	3	17	51	27	81
COUPLING	1	8.5	8.5	13	13
TEE (thru flow)	0	1.8	0	2.2	0
TEE (branch flow)	1	6.6	6.6	9.4	9.4
			82		122

LIFT STATION

PUMP ELEVATION =	2598.53
DISCHARGE ELEVATION =	2605.69
STATIC HEAD =	7.16
FORCE MAIN LENGTH =	1818

3" PIPE

FLOW (gpm)	FLOW (cfs)	VEL. (ft/s)	FRICTION LOSS (ft)	MINOR LOSS (ft)	TDH (ft)
0	0.00	0.00	0.00	0.00	7.16
20	0.04	0.91	3.31	0.15	10.62
21	0.05	0.95	3.62	0.16	10.95
22	0.05	1.00	3.95	0.18	11.29
23	0.05	1.04	4.29	0.19	11.64
24	0.05	1.09	4.64	0.21	12.01
25	0.06	1.13	5.00	0.23	12.39
35	0.08	1.59	9.33	0.42	16.91
40	0.09	1.82	11.94	0.54	19.64
60	0.13	2.72	25.28	1.14	33.58
80	0.18	3.63	43.04	1.94	52.14
90	0.20	4.08	53.52	2.41	63.09
100	0.22	4.54	65.04	2.93	75.13
120	0.27	5.45	91.13	4.11	102.40
127	0.28	5.76	101.20	4.56	112.93
140	0.31	6.35	121.20	5.47	133.83
160	0.36	7.26	155.16	7.00	169.32
180	0.40	8.17	192.94	8.70	208.80
200	0.45	9.08	234.46	10.58	252.19
220	0.49	9.99	279.67	12.61	299.44
224	0.50	10.17	289.15	13.04	309.35
240	0.53	10.89	328.51	14.82	350.49
260	0.58	11.80	380.95	17.18	405.29
280	0.62	12.71	436.92	19.71	463.79
300	0.67	13.62	496.41	22.39	525.95
320	0.71	14.52	559.36	25.23	591.75

4" PIPE

FLOW (gpm)	FLOW (cfs)	VEL. (ft/s)	FRICTION LOSS (ft)	MINOR LOSS (ft)	TDH (ft)	
0	0.00	0.00	0.00	0.00	7.16	
20	0.04	0.51	0.82	0.05	8.03	
40	0.09	1.02	2.94	0.20	10.30	
60	0.13	1.53	6.23	0.42	13.80	
80	0.18	2.04	10.60	0.71	18.47	
90	0.20	2.30	13.18	0.88	21.23	
100	0.22	2.55	16.02	1.08	24.26	
120	0.27	3.06	22.45	1.51	31.11	
121	0.27	3.09	22.80	1.53	31.49	
122	0.27	3.11	23.15	1.55	31.86	
123	0.27	3.14	23.50	1.58	32.23	
124	0.28	3.17	23.85	1.60	32.61	
125	0.28	3.19	24.21	1.62	32.99	
126	0.28	3.22	24.57	1.65	33.38	
127	0.28	3.24	24.93	1.67	33.76	***Design Conditions***
128	0.29	3.27	25.30	1.70	34.15	
129	0.29	3.29	25.66	1.72	34.54	
130	0.29	3.32	26.03	1.75	34.94	
140	0.31	3.57	29.86	2.00	39.02	
160	0.36	4.08	38.22	2.57	47.95	
180	0.40	4.60	47.53	3.19	57.88	
200	0.45	5.11	57.76	3.88	68.79	
220	0.49	5.62	68.90	4.62	80.68	
224	0.50	5.72	71.23	4.78	83.17	
240	0.53	6.13	80.93	5.43	93.52	
260	0.58	6.64	93.84	6.30	107.30	
280	0.62	7.15	107.63	7.22	122.02	
300	0.67	7.66	122.29	8.21	137.65	
320	0.71	8.17	137.80	9.25	154.20	

Company: David Evans and Associates, Inc.
Prepared by: Ken Nguyen
Date: 11/14/2025

Antioch Apartments

Private Sewer Lift Station Calculations (Buildings 1&2)

Purpose: Determine quantity of flow, wet well volume, pump & main line sizes necessary to operate a private sewage lift station for the Antioch Apartments, located at 8695 W Marigold St., Garden City, Idaho. The Sewer Lift Station is designed to be in compliance with the IDEQ requirements.

Conditions: A temporary onsite private lift station is proposed for the Antioch Apartments to service the proposed buildings 1 and 2. An 8-inch private gravity sewer line conveys flow to a wet well. A duplex pumping system transports the wastewater flow in a 4-inch force main to an existing gravity sewer manhole offsite. The lift station and collection piping will be privately owned by a HOA and maintained by a qualified state licensed operator.

Wastewater Flow			
Area of Site =	6.54	acres	
# of Apartment/Club House Units =	238	units	
Avg. # of People per Unit =	2.8	people	
Daily Flow per Person =	80	gallons per capital day (gpcd)	
Commercial Development Area =	0	acres	
Daily Flow per Commercial Area=	800	gallons per day (gpad)	
Infiltration per Service Area=	250	gallons per acre per day (gpad)	
Qavg =	53312	gpd	
Qavg =	**37**	**gpm**	
Peaking Factor =	3.0763		
Peak Daily Flow, Qpeak =	Qave * Peaking Factor		
Qpeak =	**115**	**gpm**	
=	0.26	cfs	
Qinflt =	1.14	gpm	
	0.002529	cfs	
Force Main & Pump			
Pipe Size =	4	in	
Pipe Area =	0.09	sf	
Min. Pump Size =	110% * Qpeak		
=	127	gpm	
Velocity =	Qpeak / Pipe Area		
=	3.23	fps *(minimum 2 fps required for scour)*	
Design Pump Flow, **Qpump =**	**127**	**gpm (Capacity of Qpeak)**	
=	0.28	cfs	
Velocity =	Pump Flow / Pipe Area		
=	3.24	fps	
Wet Well			
Inside Diameter =	72	in	
Volume per vertical foot =	28.3	cf/ft	
=	211	gal/ft	
Cycle Time, T =	30	minutes	
Number of Pumps, n =	2	*duplex pumps required*	
Active Volume =	$\frac{T * Qpeak}{4 * n}$		
=	431	gallons	

WET WELL								
	Active Depth =		Active Volume / Volume per Foot					
		=	2.04	ft				
	Time to Fill Active Depth =		Active Volume / Qave					
		=	11.7	minutes *(maximum 30 minute fill time)*				
	Time to Pump Active Depth =		Active Volume / Qpump					
		=	3.4	minutes				
	Total Time =		15.0	minutes				
	Starts/Hour/Pump =		**2.0**	*(maximum 5 pump starts per hour)*				
	Minimum Response Time =		0.0	*(use auto transfer switch for a permanent backup power gene*				
	Wet Well Top Elev. =		2612.00					
	Inv. In of Gravity Sewer =		2603.57					
	Emergency Flow Volume =		Response Time * Peak Hour Flow					
		=	0	gallons				
	Storage in 8" sewer line =		Pi * r^2 * L		Size of pipe =		0	in
		=	0	cf	Length of pipe =		0	ft
		=	0	gallons				
	Emergency Storage Depth =		Remaining Emergency Volume / Volume per Foot					
		=	0.00	ft				
	Emergency Alarm Elev. =		Inv. In - Emergency Storage Depth					
		=	2603.57					
	2nd Pump ON Elev. =		Alarm Elev. - 0.5ft					
		=	2603.07					
	1st Pump ON Elev. =		Alarm Elev. - 1.0ft					
		=	2602.57					
	Pump OFF Elev. =		Pump ON Elev. - Active Depth					
		=	2600.53					
	Wet Well Bottom Elev. =		Pump OFF Elev. - 2.0 ft clearance					
		=	2598.53					
	Wet Well Depth =		Top Elev. - Bottom Elev.					
		=	**13.47**	ft				
	Base Bottom Elev. =		Wet Well Bottom Elev. - Base Height					
		=	2597.53	ft				

Buoyancy Check								
Weight of the wet well must exceed the hydrostatic uplift from the displaced volume of groundwater.								
	Dave =	6.0	ft	Outside Diameter =	84	in		
	Base Height =	12	in	Lid Height =	8.5	in		
	Base Diameter =	108	in	Access Length =	48	in		
	Barrell Height =	11.8	ft	Access Width =	36	in		
	HWL Depth =	5.37	ft	Hopper Height, Hh =	18	in		
	Barrell H2O Height =	6.4	ft	Hopper Width, Hw =	12	in		
	Wet Well Area =	38.5	sf	Ave. Hopper Dia. =	Inside Dia-Hw			
	Lid Vol =	Pi * R^2 * Lid Height =			27.3	cf		
	Access Door Vol =	Length * Width * Lid Height =			8.5	cf		
	Hopper Vol =	0.5 * Hd * Hw * Pi * Dave =			14.1	cf		
	Base Vol =	Pi * R^2 * Base Height =			63.6	cf		
	Barrel H2O Vol =	Pi * R^2 * Barrel H2O Height =			246	cf		
	Displaced Water Vol =	Barrel H2O Vol. + Base Vol. =			310	cf		
	Dry Soil Vol =	(Area Base - Barrel) * HWL Depth =			135	cf		
	Wet Soil Vol =	(Area Base-Barrel)*Barrell H2O Ht. =			161	cf		
	Barrel Weight =	1810	lb/ft * Barrel Height =		21288	lbs		
	Misc. Conc. Weight =	150 pcf * (Vol. of Lid+Hopper+Base-Access) =			14477	lbs		
	Dry Soil Weight =	100 pcf * Dry Soil Volume =			13496	lbs		
	Wet Soil Weight =	100-62.4 pcf * Wet Soil Vol =			6040	lbs		
	Total Wet Well Weight =	Barrel Weight + Misc. Concrete Weight + Soil Weight						
	=	**55301**	**lbs = Wet Well Weight**					
	Displaced H2O Weight =	62.4 pcf * Displaced Water Volume						
	=	**19318**	**lbs = Buoyancy Force**					
	Factor of Safety =	Wet Well Weight / Buoyancy Force						
	=	**2.86**	*(1.5 minimum required)*					

Sanitary Sewer Flow Calculations
for
Antioch Apartments (Buildings 1 2)

Company: David Evans and Associates, Inc
Prepared by: Ken Nguyen
Date: 11/13/2025

Residential Service Area =	6.54	acres
No. of Units =	238	units
Avg. No. of People per Units =	2.8	people per unit
[1]Service Population =	666.4	people
Avg. Daily Flow per Person =	80	gpcd
[2]Avg. Residential Sanitary Flow =	0.0824548	cfs
Commercial Service Area =	0	acres
Avg. Daily Flow per Commercial Area =	800	gpad
[3]Avg. Commercial Sanitary Flow =	0	cfs
[4]Peaking Factor =	3.0762683	
[5]Peak Sanitary Flow =	0.2536532	cfs
Infiltration per Service Area	250	gpad
[6]Estm. Infiltration =	0.0025288	cfs
[7]Total Peak Flow =	0.256182	cfs
	115	gpm

Legend

	Enter value here
	Textbook/estm. value
	Computed value

Assumptions:

[1] no. of homes x people per home

[2] service pop x avg daily flow per person

[3] commercial service area x avg daily flow per acre

[4] $(14+p^{0.5}) / (4+p^{0.5})$

[5] avg flows from res & comm x pk factor

[6] infilt per serv area x serv areas from res & comm

[7] pk san flow + estm infilt

Part Full Pipe - For Design of Future Systems

D diam (in)	d/D[1] depth/ diam	Slope[2]	Mann n[3]	Total Peak Flow (cfs)	Vel (fps)	Infilt.[5] (cfs)	Peak Sanitary Flow (cfs)	Iterative Peaking Factor	Calced Peaking Factor[4]	Average Sanitary Flow (cfs)	Service Population[6]	Service Dwelling Units[7]	Service Area[8] (Ac)	Service Area (sq mi)
8	0.50	0.40%	0.016	0.31	1.78	0.03	0.28	3.06	3.06	0.09	745	266	76	0.12
10	0.55	0.28%	0.016	0.55	1.80	0.05	0.50	2.93	2.93	0.17	1,374	491	140	0.22
12	0.60	0.22%	0.016	0.91	1.86	0.09	0.82	2.81	2.81	0.29	2,365	845	241	0.38
15	0.65	0.15%	0.015	1.64	1.95	0.18	1.47	2.63	2.63	0.56	4,499	1,607	459	0.72
18	0.75	0.12%	0.015	2.88	2.03	0.33	2.55	2.45	2.45	1.04	8,415	3,005	859	1.34
21	0.75	0.10%	0.015	3.97	2.05	0.48	3.49	2.34	2.34	1.49	12,072	4,312	1,232	1.92
24	0.75	0.10%	0.015	5.67	2.24	0.71	4.95	2.21	2.21	2.24	18,096	6,463	1,847	2.89
27	0.75	0.10%	0.015	7.76	2.43	1.02	6.74	2.10	2.10	3.21	25,916	9,256	2,644	4.13
30	0.75	0.10%	0.015	10.28	2.60	1.41	8.87	2.00	2.00	4.43	35,774	12,776	3,650	5.70
36	0.80	0.10%	0.015	17.92	2.96	2.68	15.24	1.82	1.82	8.38	67,732	24,190	6,911	10.80
42	0.85	0.10%	0.014	30.52	3.50	4.92	25.60	1.66	1.66	15.43	124,624	44,509	12,717	19.87
48	0.85	0.10%	0.014	43.58	3.83	7.38	36.20	1.57	1.57	23.12	186,744	66,694	19,055	29.77
60	0.85	0.10%	0.014	79.02	4.44	14.39	64.62	1.43	1.43	45.09	364,266	130,095	37,170	58.08
72	0.85	0.10%	0.014	128.49	5.02	24.64	103.85	1.35	1.35	77.20	623,658	222,735	63,639	99.44
Full Pipe - For Analysis of Existing Systems														
8	1	0.40%	0.013	0.77	2.20	0.08	0.69	2.85	2.85	0.24	1,953	698	199	0.31
10	1	0.28%	0.013	1.16	2.13	0.12	1.04	2.74	2.74	0.38	3,066	1,095	313	0.49
12	1	0.22%	0.013	1.68	2.13	0.18	1.49	2.63	2.63	0.57	4,583	1,637	468	0.73
15	1	0.15%	0.013	2.51	2.04	0.28	2.23	2.50	2.50	0.89	7,178	2,564	732	1.14
18	1	0.12%	0.013	3.65	2.06	0.43	3.22	2.37	2.37	1.36	10,946	3,909	1,117	1.75
21	1	0.10%	0.013	5.02	2.09	0.62	4.40	2.26	2.26	1.95	15,731	5,618	1,605	2.51
24	1	0.10%	0.013	7.17	2.28	0.94	6.24	2.13	2.13	2.93	23,678	8,456	2,416	3.78
27	1	0.10%	0.013	9.82	2.47	1.34	8.48	2.02	2.02	4.20	33,943	12,123	3,464	5.41
30	1	0.10%	0.013	13.01	2.65	1.85	11.15	1.92	1.92	5.80	46,874	16,741	4,783	7.47
36	1	0.10%	0.013	21.15	2.99	3.24	17.91	1.77	1.77	10.14	81,910	29,254	8,358	13.06
42	1	0.10%	0.013	31.90	3.32	5.18	26.73	1.65	1.65	16.22	131,020	46,793	13,369	20.89
48	1	0.10%	0.013	45.55	3.62	7.75	37.79	1.56	1.56	24.29	196,250	70,089	20,026	31.29
60	1	0.10%	0.013	82.58	4.21	15.11	67.47	1.42	1.42	47.35	382,507	136,610	39,031	60.99
72	1	0.10%	0.013	134.29	4.75	25.86	108.43	1.34	1.34	81.01	654,439	233,728	66,779	104.34

Assumptions:

[1] City of Caldwell standards

[2] 10 State Standards minimum slope for 8" - 21", 0.1% for constructibility larger than 21"

[3] Based on variable mannings n at d/D specified and Mannings n of 0.013 for full pipe

[4] 10 State Standards Equation modified to local conditions $(14+P^{0.5})/(4+P^{0.5})$ where P equals population in thousands

[5] Based on 250 GPAD Infiltration

[6] Based on 80 GPCD sanitary flow per person

[7] Based on 2.8 People per dwelling unit

[8] Based on 3.5 Dwelling units per acre residential density

Company: David Evans and Associates, Inc.
Prepared by: Ken Nguyen
Date: 11/13/2025

Antioch Apartments
Private Sewer Lift Station Calculations (Building 1)

Purpose: Determine quantity of flow, wet well volume, pump & main line sizes necessary to operate a private sewage lift station for the Antioch Apartments, located at 8695 W Marigold St., Garden City, Idaho. The Sewer Lift Station is designed to be in compliance with the IDEQ requirements.

Conditions: A temporary onsite private lift station is proposed for the Antioch Apartments to service the proposed buildings 1 and 2. An 8-inch private gravity sewer line conveys flow to a wet well. A duplex pumping system transports the wastewater flow in a 3-inch force main to an existing gravity sewer manhole offsite. The lift station and collection piping will be privately owned by a HOA and maintained by a qualified state licensed operator.

Wastewater Flow		
Area of Site =	3.48	acres
# of Apartment/Club House Units =	118	units
Avg. # of People per Unit =	2.8	people
Daily Flow per Person =	80	gallons per capital day (gpcd)
Commercial Development Area =	0	acres
Daily Flow per Commercial Area=	800	gallons per day (gpad)
Infiltration per Service Area=	250	gallons per acre per day (gpad)
Qavg =	26432	gpd
Qavg =	**18**	**gpm**
Peaking Factor =	3.0763	
Peak Daily Flow, Qpeak =	Qave * Peaking Factor	
Qpeak =	**57**	**gpm**
=	0.13	cfs
Qinflt =	0.60	gpm
	0.001346	cfs
Force Main & Pump		
Pipe Size =	4	in
Pipe Area =	0.09	sf
Min. Pump Size =	110% * Qpeak	
=	63	gpm
Velocity =	Qpeak / Pipe Area	
=	1.60	fps *(minimum 2 fps required for scour)*
Design Pump Flow, **Qpump =**	**127**	**gpm (Capacity of Qpeak)**
=	0.28	cfs
Velocity =	Pump Flow / Pipe Area	
=	3.24	fps
Wet Well		
Inside Diameter =	72	in
Volume per vertical foot =	28.3	cf/ft
=	211	gal/ft
Cycle Time, T =	30	minutes
Number of Pumps, n =	2	*duplex pumps required*
Active Volume =	$\frac{T * Qpeak}{4 * n}$	
=	214	gallons

WET WELL

Active Depth =	Active Volume / Volume per Foot						
=	1.01	ft					
Time to Fill Active Depth =	Active Volume / Qave						
=	11.7	minutes *(maximum 30 minute fill time)*					
Time to Pump Active Depth =	Active Volume / Qpump						
=	1.7	minutes					
Total Time =	13.3	minutes					
Starts/Hour/Pump =	**2.2**	*(maximum 5 pump starts per hour)*					
Minimum Response Time =	0.0	*(use auto transfer switch for a permanent backup power gene*					
Wet Well Top Elev. =	2612.00						
Inv. In of Gravity Sewer =	2603.57						
Emergency Flow Volume =	Response Time * Peak Hour Flow						
=	0	gallons					
Storage in 8" sewer line =	Pi * r^2 * L			Size of pipe =	0	in	
=	0	cf		Length of pipe =	0	ft	
=	0	gallons					
Emergency Storage Depth =	Remaining Emergency Volume / Volume per Foot						
=	0.00	ft					
Emergency Alarm Elev. =	Inv. In - Emergency Storage Depth						
=	2603.57						
2nd Pump ON Elev. =	Alarm Elev. - 0.5ft						
=	2603.07						
1st Pump ON Elev. =	Alarm Elev. - 1.0ft						
=	2602.57						
Pump OFF Elev. =	Pump ON Elev. - Active Depth						
=	2601.56						
Wet Well Bottom Elev. =	Pump OFF Elev. - 2.0 ft clearance						
=	2599.56						
Wet Well Depth =	Top Elev. - Bottom Elev.						
=	**12.44**	ft					
Base Bottom Elev. =	Wet Well Bottom Elev. - Base Height						
=	2598.56	ft					

Buoyancy Check							
Weight of the wet well must exceed the hydrostatic uplift from the displaced volume of groundwater.							
Dave =	6.0	ft	Outside Diameter =	84	in		
Base Height =	12	in	Lid Height =	8.5	in		
Base Diameter =	108	in	Access Length =	48	in		
Barrell Height =	10.7	ft	Access Width =	36	in		
HWL Depth =	5.37	ft	Hopper Height, Hh =	18	in		
Barrell H2O Height =	5.4	ft	Hopper Width, Hw =	12	in		
Wet Well Area =	38.5	sf	Ave. Hopper Dia. =	Inside Dia-Hw			
Lid Vol =	Pi * R^2 * Lid Height =			27.3	cf		
Access Door Vol =	Length * Width * Lid Height =			8.5	cf		
Hopper Vol =	0.5 * Hd * Hw * Pi * Dave =			14.1	cf		
Base Vol =	Pi * R^2 * Base Height =			63.6	cf		
Barrel H2O Vol =	Pi * R^2 * Barrel H2O Height =			206	cf		
Displaced Water Vol =	Barrel H2O Vol. + Base Vol. =			270	cf		
Dry Soil Vol =	(Area Base - Barrel) * HWL Depth =			135	cf		
Wet Soil Vol =	(Area Base-Barrel)*Barrell H2O Ht. =			135	cf		
Barrel Weight =	1810	lb/ft * Barrel Height =		19428	lbs		
Misc. Conc. Weight =	150 pcf * (Vol. of Lid+Hopper+Base-Access) =			14477	lbs		
Dry Soil Weight =	100 pcf * Dry Soil Volume =			13496	lbs		
Wet Soil Weight =	100-62.4 pcf * Wet Soil Vol =			5069	lbs		
Total Wet Well Weight =	Barrel Weight + Misc. Concrete Weight + Soil Weight						
=	**52470**	**lbs = Wet Well Weight**					
Displaced H2O Weight =	62.4 pcf * Displaced Water Volume						
=	**16850**	**lbs = Buoyancy Force**					
Factor of Safety =	Wet Well Weight / Buoyancy Force						
=	**3.11**	*(1.5 minimum required)*					