


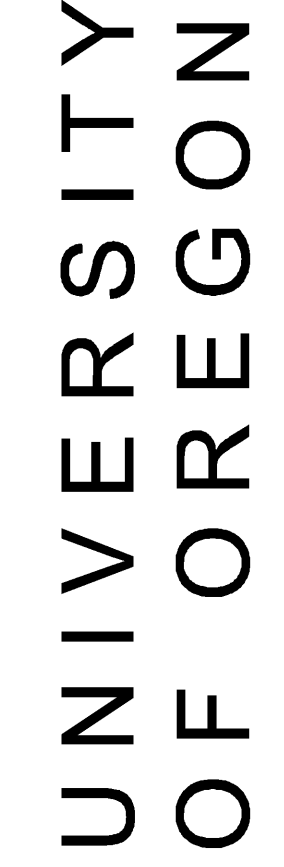
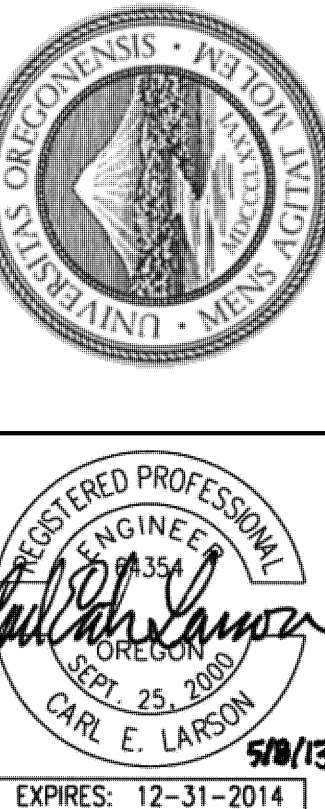


**DRAWING LIST**

SHEET NO.	SHEET TITLE	SHEET NO.	SHEET TITLE	SHEET NO.	SHEET TITLE
<b>GENERAL</b>		<b>MECHANICAL</b>			
G0.00	CAMPUS CENTRAL WATER LINE REPAIR - COVER SHEET	M0.01	CAMPUS CENTRAL WATER LINE REPAIR - MECHANICAL LEGEND AND ABBREVIATIONS		
G0.01	CAMPUS CENTRAL WATER LINE REPAIR - DRAWING LIST	M0.02	CAMPUS CENTRAL WATER LINE REPAIR - PIPING AND INSTRUMENTATION DIAGRAM CENTRAL WATER LINE REMOVALS		
		M0.03	CAMPUS CENTRAL WATER LINE REPAIR - PIPING AND INSTRUMENTATION DIAGRAM CENTRAL WATER LINE		
<b>CIVIL</b>		M0.04	CAMPUS CENTRAL WATER LINE REPAIR - PIPING AND INSTRUMENTATION DIAGRAM CENTRAL WATER LINE		
C1.0	CIVIL NOTES, LEGEND, ABBREVIATIONS AND DETAILS	M0.04	CAMPUS CENTRAL WATER LINE REPAIR - PHASING PLAN NARRATIVE		
C2.0	NORTH ACCESS PLAN	M1.01	CAMPUS CENTRAL WATER LINE REPAIR - TUNNEL SITE PLAN		
C2.1	SOUTH ACCESS PLAN	M1.02	CAMPUS CENTRAL WATER LINE REPAIR - PARTIAL TUNNEL PLANS CENTRAL WATER LINE		
		M1.03	CAMPUS CENTRAL WATER LINE REPAIR - PARTIAL TUNNEL PLANS CENTRAL WATER LINE		
		M1.04	CAMPUS CENTRAL WATER LINE REPAIR - PARTIAL TUNNEL PLANS CENTRAL WATER LINE		
<b>STRUCTURAL</b>		M1.05	CAMPUS CENTRAL WATER LINE REPAIR - PARTIAL TUNNEL PLANS CENTRAL WATER LINE		
S0.01	CAMPUS CENTRAL WATER LINE REPAIR - GENERAL STRUCTURAL NOTES, SPECIAL INSPECTIONS AND TESTING PROGRAM, DRAWING INDEX AND ABBREVIATIONS	M1.06	CAMPUS CENTRAL WATER LINE REPAIR - PARTIAL TUNNEL PLANS CENTRAL WATER LINE		
S2.01	CAMPUS CENTRAL WATER LINE REPAIR - TUNNEL SITE PLAN	M1.07	CAMPUS CENTRAL WATER LINE REPAIR - PARTIAL TUNNEL PLANS CENTRAL WATER LINE		
S5.01	CAMPUS CENTRAL WATER LINE REPAIR - DETAILS	M2.01	CAMPUS CENTRAL WATER LINE REPAIR - TUNNEL SECTIONS		
		M3.01	CAMPUS CENTRAL WATER LINE REPAIR - DETAILS		
		M3.02	CAMPUS CENTRAL WATER LINE REPAIR - DETAILS		

PLOTTED BY: KHON  
 NUMBER: 04/23/10 at 08:51 am  
 JOB NAME: 09gr  
 OPENED: 05/06/10 at 09:37 am  
 ACCESS BY: KHON  
 FILE NAME: g:\2008\08100\03\dwg\m\ccwr-g0.01.dwg  
 ATTACHED PLOTS: TP-WH30X42  
 ATTACHED SCRIPT: NONE

**ISSUED FOR CONSTRUCTION - MAY 8, 2013**

REVISION	BY
	
	
	
UNIVERSITY OF OREGON CAMPUS CENTRAL TUNNEL WATER LINE REPAIR 1217 UNIVERSITY OF OREGON EUGENE, OR 97403-1217 SHEET TITLE CAMPUS CENTRAL TUNNEL WATER LINE REPAIR DRAWING LIST	
DATE	5/8/13
SCALE	NONE
ENGR	SAG
DRWN	THN
CHKD	SAG
APPR	WHS
JOB	08100.09
<b>G0.01</b> SHEET OF	



**GENERAL NOTES**

- EXISTING MAPPING MAY NOT BE COMPLETE OR ACCURATE. EXISTING CONDITIONS HAVE NOT BEEN SURVEYED. CONTRACTOR TO VERIFY EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION.
- ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THESE PLANS, THE PROJECT SPECIFICATIONS AND THE APPLICABLE REQUIREMENTS OF THE 2008 OREGON PLUMBING SPECIALTY CODE AND REQUIREMENTS OF THE CITY OF EUGENE.
- THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES AND REGULATIONS. ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES FOR THE EXECUTION AND COMPLETION OF WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.
- ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987). EXCAVATORS MUST NOTIFY ALL PERTINENT COMPANIES OR AGENCIES WITH UNDERGROUND UTILITIES IN THE PROJECT AREA AT LEAST 48 BUSINESS-DAY HOURS, BUT NOT MORE THAN 10 BUSINESS DAYS PRIOR TO COMMENCING AN EXCAVATION, SO UTILITIES MAY BE ACCURATELY LOCATED.
- CONTACT ERIC GRAPE WITH CAMPUS FACILITIES TWO WEEKS PRIOR TO CONSTRUCTION FOR UTILITY LOCATES BY THE UNIVERSITY.
- THE ENGINEER OR OWNER IS NOT RESPONSIBLE FOR THE SAFETY OF THE CONTRACTOR OR HIS CREW. ALL O.S.H.A. REGULATIONS SHALL BE STRICTLY ADHERED TO IN THE PERFORMANCE OF THE WORK.
- TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IMPLEMENTED. THE CONTRACTOR SHALL ADHERE TO THE CITY OF EUGENE EROSION CONTROL PERMIT. FOR MINIMUM EROSION CONTROL MEASURES, THE ESC FACILITIES SHOWN IN THESE PLANS ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL ROADWAYS, KEEPING THEM CLEAN AND FREE OF CONSTRUCTION MATERIALS AND DEBRIS, AND PROVIDING DUST CONTROL AS REQUIRED.
- TRAFFIC CONTROL AND PEDESTRIAN SAFETY SHALL BE PROVIDED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL PROVIDE A PLAN TO THE UNIVERSITY OF OREGON FOR REVIEW AND APPROVAL PRIOR TO COMMENCING CONSTRUCTION.
- CONTRACTOR SHALL MAINTAIN ALL UTILITIES TO BUILDINGS AT ALL TIMES DURING CONSTRUCTION.
- WORK ZONE. CONTRACTOR SHALL CREATE A SECURE WORK ZONE THAT PREVENTS PEDESTRIANS FROM ENTERING THE WORK ZONE AND AVOID POTENTIAL ACCIDENTS. THROUGH THE USE OF FENCING, BARRIERS AND SIGNAGE, CONTRACTOR SHALL SUBMIT A SECURE WORK ZONE PLAN TO THE UNIVERSITY OF OREGON FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

**CONSTRUCTION NOTES**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND DISPOSAL OF EXISTING A.C., CURBS, SIDEWALKS AND OTHER SITE ELEMENTS.
- EXCEPT FOR MATERIALS INDICATED TO BE STOCKPILED OR TO REMAIN ON UNIVERSITY'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY, REMOVED FROM THE SITE, AND DISPOSED OF PROPERLY.
- ITEMS INDICATED TO BE SALVAGED SHALL BE CAREFULLY REMOVED, DELIVERED AND STORED AT THE PROJECT SITE AS DIRECTED BY THE UNIVERSITY.
- ALL LANDSCAPING, PAVEMENT, CURBS AND SIDEWALKS, BEYOND THE IDENTIFIED SITE AREA, DAMAGED DURING THE CONSTRUCTION SHALL BE REPLACED TO THEIR ORIGINAL CONDITION OR BETTER.
- CONCRETE SIDEWALKS AND PAVEMENTS SHOWN FOR DEMOLITION SHALL BE REMOVED TO THE NEAREST EXISTING CONSTRUCTION JOINT.
- SAWCUT STRAIGHT MATCHLINES TO CREATE A BUTT JOINT BETWEEN THE EXISTING AND NEW PAVEMENT.
- CONTRACTOR SHALL ADJUST ALL EXISTING AND/OR NEW FLEXIBLE UTILITIES (WATER, GAS, TV, TELEPHONE, ELEC., ETC.) TO CLEAR ANY EXISTING OR NEW GRAVITY DRAIN UTILITIES (STORM DRAIN, SANITARY SEWER, ETC.) IF CONFLICT OCCURS.

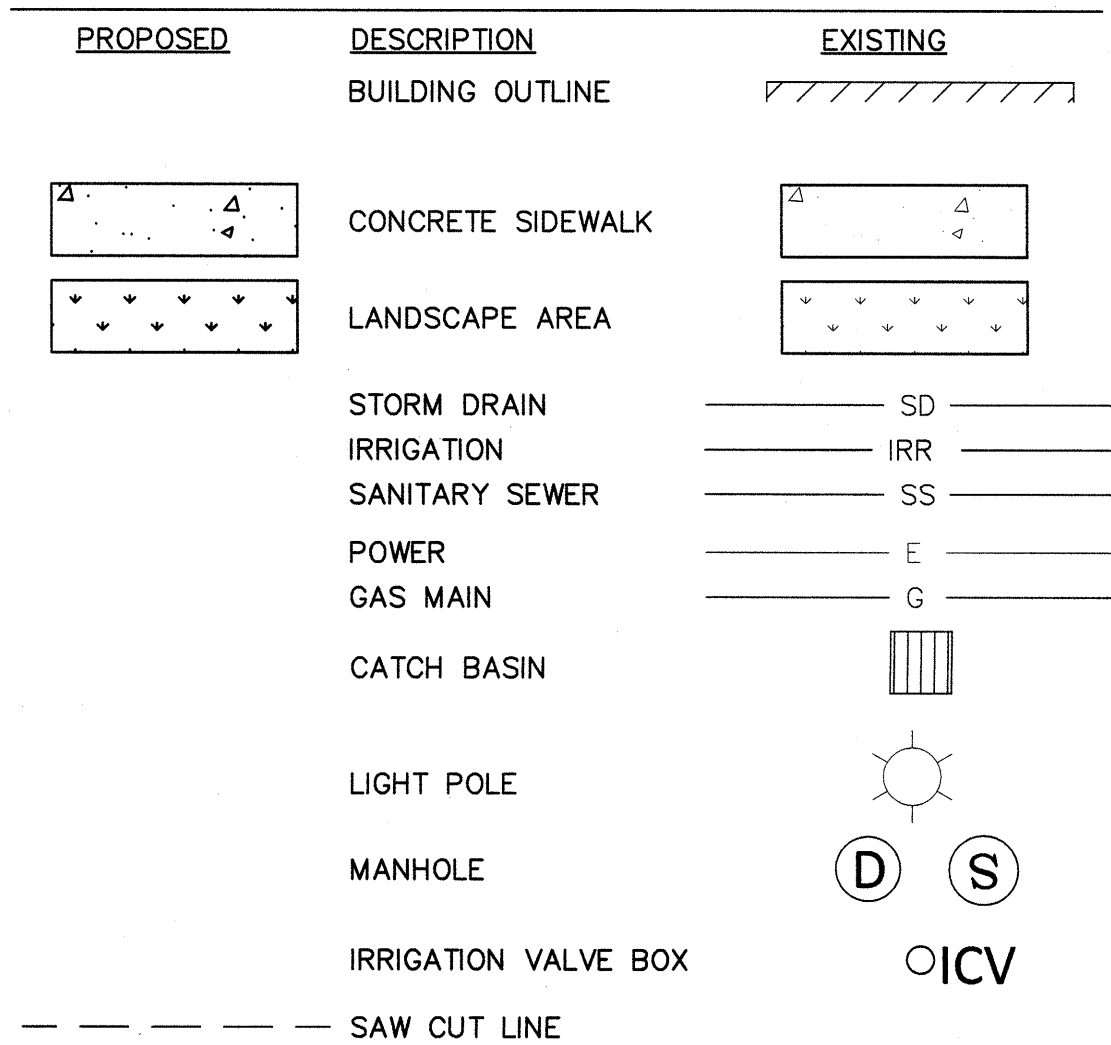
**EARTHWORK NOTES**

- SOIL MATERIALS
  - SATISFACTORY SOILS, GRANULAR, AND FINE-GRAINED SITE FILLS ASTM D 2487 SOIL CLASSIFICATION GROUPS GM, GP, SM, SW, SP, AND SC, OR A COMBINATION OF THESE GROUP SYMBOLS; FREE OF ROCK OR GRAVEL LARGER THAN 3 INCHES IN ANY DIMENSION, PLASTIC CLAY, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION, AND OTHER DELETERIOUS MATTER.
  - BASE COURSE: USE ODOT 3/4-INCH - 0-INCH BASE AGGREGATE.
  - ENGINEERED FILL: USE ODOT 3/4-INCH - 0-INCH OR 1-INCH - 0-INCH BASE AGGREGATE.
- PREPARATION
  - PREVENT SURFACE WATER AND GROUND WATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES, AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. PROTECT SUBGRADES FROM SOFTENING, UNDERMINING, WASHOUT, AND DAMAGE BY RAIN OR WATER ACCUMULATION.
- SUBGRADE INSPECTION
  - PROOF-ROLL SUBGRADE BEFORE FILLING OR PLACING AGGREGATE WITH HEAVY PNEUMATIC-TIRED EQUIPMENT TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. DO NOT PROOF-ROLL WET OR SATURATED SUBGRADES.
  - RECONSTRUCT SUBGRADES DAMAGED BY FREEZING TEMPERATURES, FROST, RAIN, ACCUMULATED WATER, OR CONSTRUCTION ACTIVITIES, AS DIRECTED BY ENGINEER, WITHOUT ADDITIONAL COMPENSATION.
- SOIL FILL
  - PLACE AND COMPACT FILL MATERIAL IN LAYERS TO REQUIRED ELEVATIONS AS FOLLOWS:
    - UNDER GRASS AND PLANTED AREAS USE SATISFACTORY SOIL MATERIAL.
    - UNDER WALKS AND PAVEMENTS, USE SATISFACTORY SOIL MATERIAL.
    - UNDER STEPS, RAMPS, BUILDING SLABS, FOOTINGS, AND AROUND TUNNEL AND UTILITY STRUCTURES USE ENGINEERED FILL.
- COMPACTION OF SOIL BACKFILLS AND FILLS
  - PLACE FILL SOIL MATERIALS IN LAYERS NOT MORE THAN 8 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS.
  - COMPACT SOIL MATERIALS TO NOT LESS THAN THE FOLLOWING PERCENTAGES OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 1557:
    - UNDER STRUCTURES, BUILDING SLABS, STEPS, AND PAVEMENTS, SCARIFY AND RECOMPACT TOP 12 INCHES OF EXISTING SUBGRADE AND EACH LAYER OF BACKFILL OR FILL SOIL MATERIAL AT 95 PERCENT.
    - UNDER WALKWAYS, SCARIFY AND RECOMPACT TOP 6 INCHES (150 MM) BELOW SUBGRADE AND COMPACT EACH LAYER OF BACKFILL OR FILL SOIL MATERIAL AT 92 PERCENT.
    - UNDER LAWN OR UNPAVED AREAS, SCARIFY AND RECOMPACT TOP 6 INCHES (150 MM) BELOW SUBGRADE AND COMPACT EACH LAYER OF BACKFILL OR FILL SOIL MATERIAL AT 85 PERCENT.
- BASE COURSES
  - PLACE BASE COURSE ON SUBGRADES FREE OF MUD, FROST, SNOW, OR ICE.
  - ON PREPARED SUBGRADE, PLACE BASE COURSE UNDER PAVEMENTS AND WALKS AS FOLLOWS:
    - SHAPE SUBBASE AND BASE COURSE TO REQUIRED CROWN ELEVATIONS AND CROSS-SLOPE GRADES. CROSS-SLOPE TO BE AT LEAST 1 AND NO MORE THAN 2 PERCENT.
    - COMPACT BASE COURSE AT OPTIMUM MOISTURE CONTENT TO REQUIRED GRADES, LINES, CROSS SECTIONS, AND THICKNESS TO NOT LESS THAN 95 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 1557.
  - FIELD QUALITY CONTROL
    - GEOTECHNICAL ENGINEER SHALL BE CONTACTED BY CONTRACTOR TO GIVE ADDITIONAL EARTHWORK RECOMMENDATIONS PRIOR TO ANY EARTHWORK ACTIVITIES IN THE WET WEATHER SEASON

**CEMENT-CONCRETE PAVEMENT NOTES**

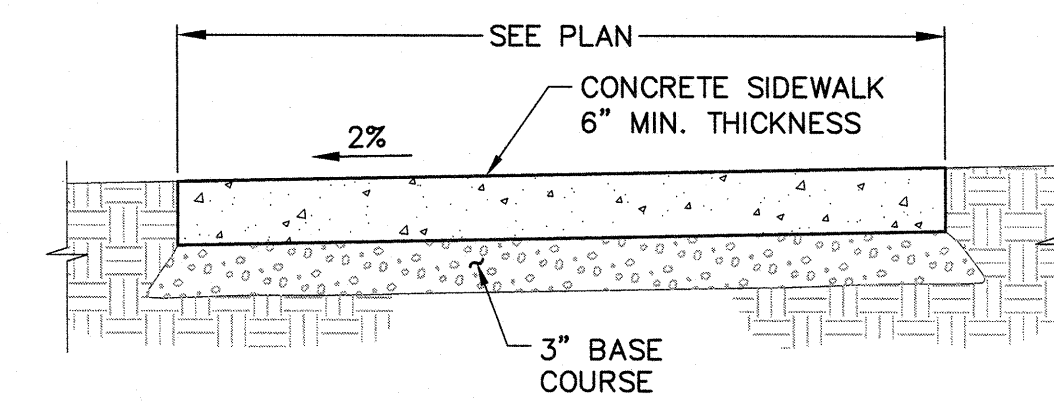
- SUBMITTALS
  - MATERIAL CERTIFICATES: SIGNED BY MANUFACTURERS CERTIFYING THAT EACH OF THE FOLLOWING MATERIALS COMPLIES WITH REQUIREMENTS:
    - CEMENTITIOUS MATERIALS AND AGGREGATES.
    - JOINT FILLERS.
    - SURFACE FINISHES.
- QUALITY ASSURANCE
  - INSTALLER QUALIFICATIONS: AN EXPERIENCED INSTALLER WHO HAS COMPLETED PAVEMENT WORK SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR THIS PROJECT AND WHOSE WORK HAS RESULTED IN CONSTRUCTION WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE.
  - MANUFACTURER QUALIFICATIONS: MANUFACTURER OF READY-MIXED CONCRETE PRODUCTS COMPLYING WITH ASTM C 94 REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT.
    - MANUFACTURER MUST BE CERTIFIED ACCORDING TO THE NATIONAL READY MIX CONCRETE ASSOCIATION'S PLANT CERTIFICATION PROGRAM.
- CONCRETE MATERIALS
  - PORTLAND CEMENT: ASTM C 150, TYPE I.
  - FLY ASH: ASTM C 618, CLASS C.
  - AGGREGATE: ASTM C 33, UNIFORMLY GRADED, FROM A SINGLE SOURCE, WITH COURSE AGGREGATE CLASS 4M.
  - WATER: ASTM C 94.
  - PAVEMENT-MARKING PAINT: ALKYD-RESIN TYPE; READY MIXED; COMPLYING WITH FS TT-P-115, TYPE I, OR AASHTO M 248, TYPE II.
- CONCRETE MIXES
  - PREPARE DESIGN MIXES, PROPORTIONED ACCORDING TO ACI 211.1 AND ACI 301, WITH THE FOLLOWING PROPERTIES:
    - COMPRESSIVE STRENGTH (28 DAYS): 4000 PSI.
    - MAXIMUM WATER-CEMENTITIOUS MATERIALS RATIO: 0.50.
    - SLUMP LIMIT: 4 INCHES.
    - AIR CONTENT: 6.0 PERCENT FOR 1-INCH MAXIMUM AGGREGATE.
- CONCRETE MIXING
  - READY-MIXED CONCRETE: COMPLY WITH REQUIREMENTS AND WITH ASTM C 94 AND ASTM C 1116.
    - WHEN AIR TEMPERATURE IS BETWEEN 85 DEG F AND 90 DEG F, REDUCE MIXING AND DELIVERY TIME FROM 1-1/2 HOURS TO 75 MINUTES; WHEN AIR TEMPERATURE IS ABOVE 90 DEG F, REDUCE MIXING AND DELIVERY TIME TO 60 MINUTES.
- EXAMINATION
  - EXAMINE EXPOSED SUBGRADES AND BASE SURFACES FOR COMPLIANCE WITH REQUIREMENTS FOR DIMENSIONAL GRADING, AND ELEVATION TOLERANCES.
  - PROOF-ROLL PREPARED BASE SURFACE BELOW CONCRETE PAVEMENTS WITH HEAVY PNEUMATIC-TIRED EQUIPMENT TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. BASE WITH SOFT SPOTS AND AREAS OF PUMPING OR RUTTING EXCEEDING DEPTH OF 1/2 INCH REQUIRE CORRECTION
  - PROCEED WITH CONCRETE PAVEMENT OPERATIONS ONLY AFTER NONCONFORMING CONDITIONS HAVE BEEN CORRECTED AND SUBGRADE IS READY TO RECEIVE PAVEMENT.
- JOINTS
  - GENERAL: CONSTRUCT CONSTRUCTION CONTRACTION JOINTS AND TOOL EDGINGS TRUE TO LINE WITH FACES PERPENDICULAR TO SURFACE PLANE OF CONCRETE. CONSTRUCT TRANSVERSE JOINTS AT RIGHT ANGLES TO CENTERLINE, UNLESS OTHERWISE INDICATED.
    - WHEN JOINING EXISTING PAVEMENT, PLACE TRANSVERSE JOINTS TO ALIGN WITH PREVIOUSLY PLACED JOINTS, UNLESS OTHERWISE INDICATED.
  - CONTRACTION JOINTS: FORM WEAKENED-PLANE CONTRACTION JOINTS, SECTIONING CONCRETE INTO AREAS AS INDICATED. CONSTRUCT CONTRACTION JOINTS FOR A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE CONCRETE THICKNESS, AS FOLLOWS:
    - LOCATE CONTRACTION JOINTS AT MAXIMUM INTERVALS OF 12 FEET.
    - USE GROOVED JOINTS TO PROVIDE A NEATER, CLEANER CONTRACTION JOINT, UNLESS SAWED JOINTS ARE REQUESTED BY THE UNIVERSITY OF OREGON OR ENGINEER.
    - GROOVED JOINTS: FORM CONTRACTION JOINTS AFTER INITIAL FLOATING BY GROOVING AND FINISHING EACH EDGE OF JOINT WITH GROOVER TOOL TO A 1/4 INCH RADIUS. REPEAT GROOVING OF CONTRACTION JOINTS AFTER APPLYING SURFACE FINISHES. ELIMINATE GROOVER MARKS ON CONCRETE SURFACES.
- CONCRETE PLACEMENT
  - COMPLY WITH REQUIREMENTS AND WITH RECOMMENDATIONS IN ACI 301 AND ACI 304R FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.
  - DO NOT ADD WATER TO CONCRETE DURING DELIVERY, AT PROJECT SITE, OR DURING PLACEMENT.
  - DEPOSIT AND SPREAD CONCRETE IN A CONTINUOUS OPERATION BETWEEN TRANSVERSE JOINTS. DO NOT PUSH OR DRAG CONCRETE INTO PLACE OR USE VIBRATORS TO MOVE CONCRETE INTO PLACE.
  - SCREED PAVEMENT SURFACES WITH A STRAIGHTEDGE AND STRIKE OFF. COMMENCE INITIAL FLOATING USING BULL FLOATS OR DARBIES TO FORM AN OPEN TEXTURED AND UNIFORM SURFACE PLANE BEFORE EXCESS MOISTURE OR BLEED WATER APPEARS ON THE SURFACE. DO NOT FURTHER DISTURB CONCRETE SURFACES BEFORE BEGINNING FINISHING OPERATIONS OR SPREADING DRY-SHAKE SURFACE TREATMENTS.
  - WHEN ADJOINING CONCRETE PAVEMENT AREAS ARE PLACED IN SEPARATE POURS, DO NOT OPERATE EQUIPMENT ON CONCRETE UNTIL PAVEMENT HAS ATTAINED 85 PERCENT OF ITS 28-DAY COMPRESSIVE STRENGTH.
- CONCRETE FINISHING
  - GENERAL: WETTING OF CONCRETE SURFACES DURING SCREEDING, INITIAL FLOATING, OR FINISHING OPERATIONS IS PROHIBITED.
  - FLOAT FINISH: BEGIN THE FINISH FLOATING OPERATION WHEN BLEED-WATER SHEEN HAS DISAPPEARED AND THE CONCRETE SURFACE HAS STIFFENED SUFFICIENTLY TO PERMIT OPERATIONS. FLOAT SURFACE WITH POWER-DRIVEN FLOATS, OR BY HAND FLOATING IF AREA IS SMALL OR INACCESSIBLE TO POWER UNITS. FINISH SURFACES TO TRUE PLANES. CUT DOWN HIGH SPOTS, AND FILL LOW SPOTS. REFLOAT SURFACE IMMEDIATELY TO UNIFORM GRANULAR TEXTURE.
    - FINISH SHALL MATCH THE FINISH OF EXISTING CONCRETE WALK ADJACENT TO NEW CONCRETE WALK.
  - EDGING: TOOL EDGES OF PAVEMENT, GUTTERS, CURBS, AND JOINTS IN CONCRETE AFTER INITIAL FLOATING WITH AN EDGING TOOL TO A 1/4 INCH RADIUS. REPEAT TOOLING OF EDGES AFTER APPLYING SURFACE FINISHES. ELIMINATE TOOL MARKS ON CONCRETE SURFACES.
- REPAIRS AND PROTECTION
  - REMOVE AND REPLACE CONCRETE PAVEMENT THAT IS BROKEN, DAMAGED, DEFECTIVE, OR GENERALLY UNACCEPTABLE TO THE UNIVERSITY OF OREGON.
  - PROTECT CONCRETE FROM DAMAGE. EXCLUDE TRAFFIC FROM PAVEMENT FOR AT LEAST 14 DAYS AFTER PLACEMENT. WHEN CONSTRUCTION TRAFFIC IS PERMITTED, MAINTAIN PAVEMENT AS CLEAN AS POSSIBLE BY REMOVING SURFACE STAINS AND SPILLAGE OF MATERIALS AS THEY OCCUR.
  - MAINTAIN CONCRETE PAVEMENT FREE OF STAINS, DISCOLORATION, DIRT, AND OTHER FOREIGN MATERIAL. SWEEP CONCRETE PAVEMENT NOT MORE THAN TWO DAYS BEFORE DATE SCHEDULED FOR SUBSTANTIAL COMPLETION INSPECTIONS

**LEGEND**



**ABBREVIATIONS**

CB	CATCH BASIN
GL	GAS LINE
IRR	IRRIGATION
LP	LIGHT POLE
MH	MANHOLE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
S/W	SIDEWALK
USE	UNDERGROUND ELECTRIC
W	WATER



- NOTES:
- CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING, AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY, UNLESS NOTED OTHERWISE.

**1 CONCRETE SIDEWALK**

SCALE: NTS

**NOTICE TO EXCAVATORS:**  
 ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER.  
 (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503)-232-1987).

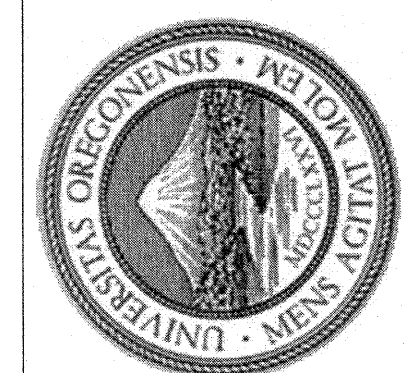
POTENTIAL UNDERGROUND FACILITY OWNERS  
**Dig Safely.**  
 Call the Oregon One-Call Center  
 1-800-332-2344

**kpff**  
 Consulting Engineers  
 201 Oak Street  
 Suite 100  
 Eugene, Oregon 97401  
 Phone: (541) 684-4929  
 Fax: (541) 684-4929

REVISION	BY

**WOOD HARBINGER**  
 Mechanical and Electrical Engineers  
 Bellevue, WA

**UNIVERSITY OF OREGON**



UNIVERSITY OF OREGON  
 CAMPUS CENTRAL TUNNEL WATER LINE REPAIR  
 1217 UNIVERSITY OF OREGON  
 EUGENE, OR 97403-1217

**ISSUED FOR CONSTRUCTION - MAY 8, 2013**

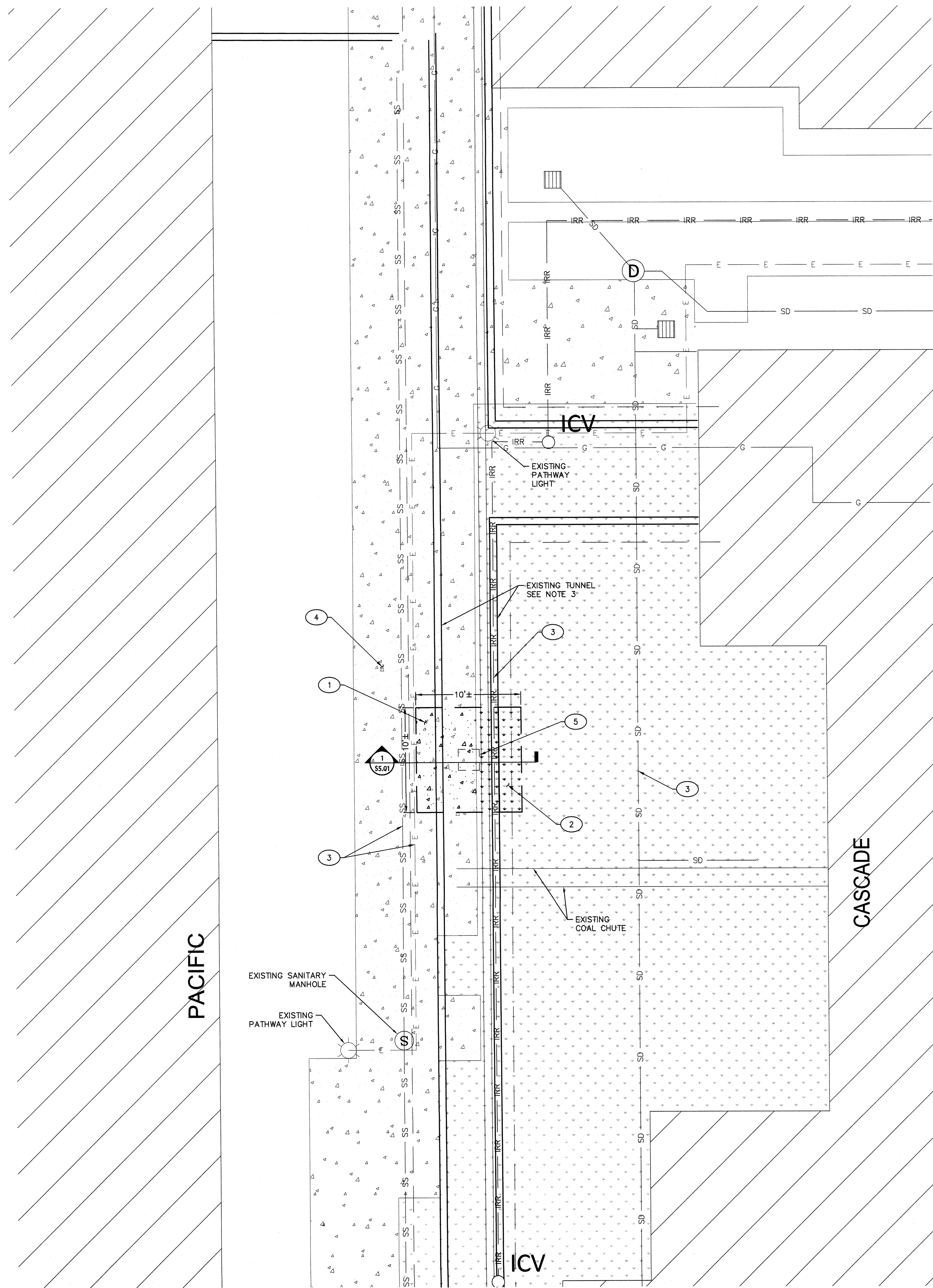
CIVIL NOTES, LEGEND, ABBREVIATIONS AND DETAILS

SHEET TITLE

DATE	5/8/13
SCALE	AS SHOWN
ENGR	MK
DRWN	AF
CHKD	MK
APPR	MK
JOB	08100.09
SHEET	OF

**C1.0**





NORTH ACCESS  
 APPROXIMATE SCALE: 1 INCH = 5 FEET



SHEET NOTES

1. SAW CUT LOCATION AND LIMITS OF SURFACE RESTORATION SHOWN ARE ESTIMATED AND MAY VARY DEPENDING ON CONSTRUCTION METHODS. CONTRACTOR TO DETERMINE ACTUAL LIMITS REQUIRED FOR CONSTRUCTION. CONTRACTOR SHALL REPLACE ALL EXISTING CONDITION (TREES, PLANTINGS, WALKS, PAVERS) THAT ARE DAMAGED DURING CONSTRUCTION TO THE ORIGINAL CONDITION. WALKS SHALL BE REMOVED TO THE NEAREST CONTROL JOINT.
2. TUNNEL LOCATION IS APPROXIMATE AND BASED ON EXISTING CAMPUS UTILITY MAP. CONTRACTOR TO FIELD VERIFY TUNNEL LOCATION AND ADJUST ACCESS ACCORDING TO ACTUAL LOCATION.
3. CONTRACTOR TO COORDINATE WITH ERIC GRAPE AT THE UNIVERSITY OF OREGON FOR UTILITY LOCATES PRIOR TO CONSTRUCTION. 541-346-2378

KEY NOTES

1. SAWCUT CONCRETE WALKWAY AND REPLACE CONCRETE WALKWAY PER DETAIL 1/C1.0. SEE NOTE 1.
2. RESTORE LAWN IN ALL DISTURBED AREAS NOT RECEIVING A HARD SURFACE. LAWN TO MATCH EXISTING AND INCLUDE AT LEAST 12 INCHES OF ORGANIC TOPSOIL WITH AMENDMENTS. PROTECT SEEDED AREAS UNTIL PLANTING IS ESTABLISHED. SEE NOTE 1.
3. PROTECT EXISTING UTILITY. APPROXIMATE LOCATION. SEE NOTE 4.
4. PROTECT EXISTING SIDEWALK. PROVIDE SHORING AS REQUIRED TO KEEP WORK LIMITS OUT OF PATH. SEE NOTE 1.
5. PROPOSED 2'X2' TUNNEL ACCESS FOR UTILITY PIPE INSTALLATION. FIELD ADJUST ACCESS SIZE AND LOCATION AS REQUIRED TO AVOID UTILITY CONFLICTS OR MITIGATE SURFACE RESTORATIONS.

REVISION	BY



UNIVERSITY OF OREGON



ISSUED FOR CONSTRUCTION - MAY 8, 2013

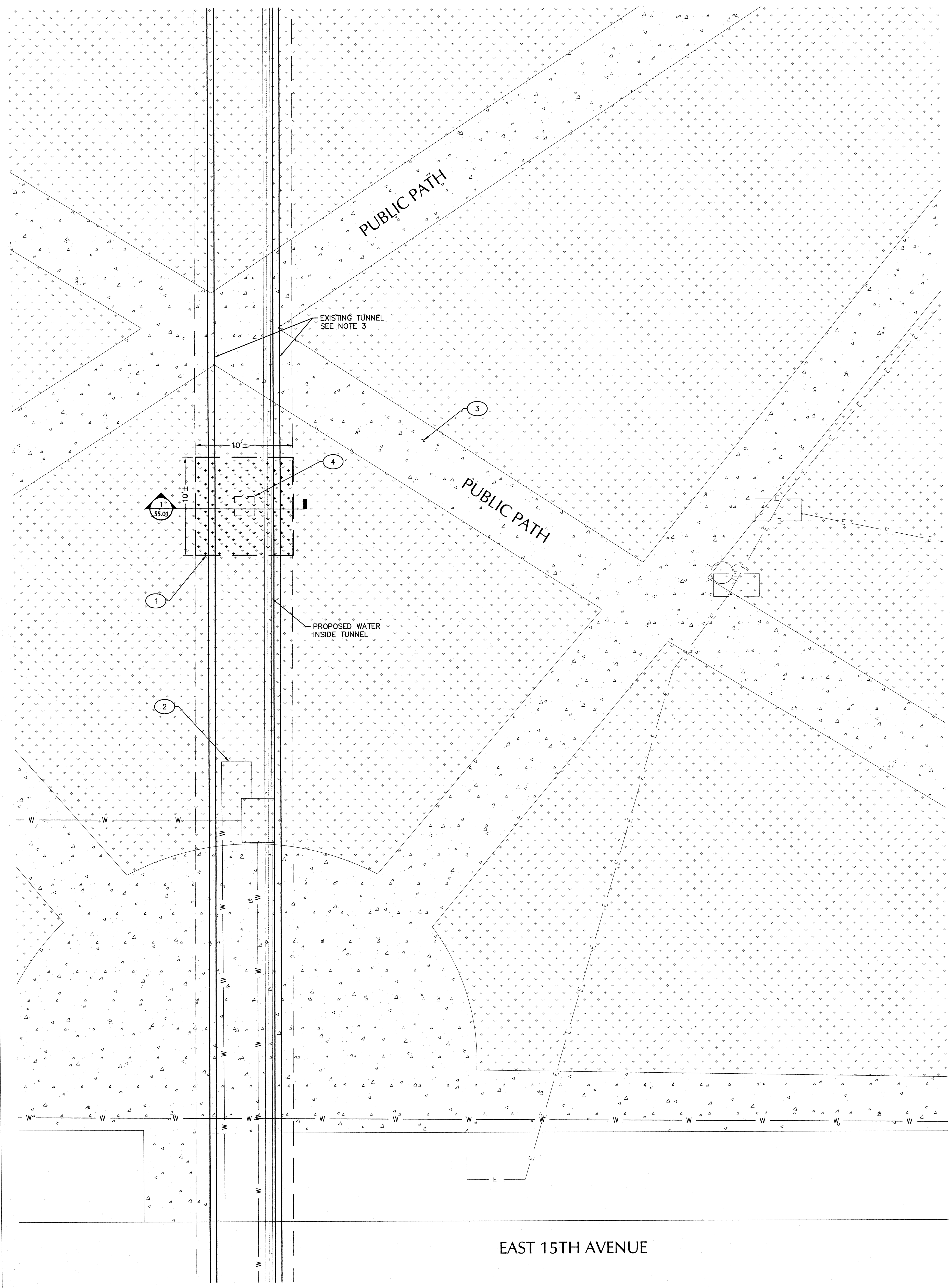
UNIVERSITY OF OREGON  
 CAMPUS CENTRAL TUNNEL WATER LINE REPAIR  
 1217 UNIVERSITY OF OREGON  
 EUGENE, OR 97403-1217  
 SHEET TITLE  
 NORTH ACCESS PLAN

DATE	5/8/13
SCALE	AS SHOWN
ENGR	MK
DRWN	AF
CHKD	MK
APPR	MK
JOB	08100.09
SHEET	C2.0 OF



201 Oak Street  
 Suite 100  
 Eugene, Oregon 97401  
 Phone (541) 684-4902  
 Fax (541) 684-4909





SOUTH ACCESS  
 APPROXIMATE SCALE: 1 INCH = 5 FEET



SHEET NOTES

1. SAW CUT LOCATION AND LIMITS OF SURFACE RESTORATION SHOWN ARE ESTIMATED AND MAY VARY DEPENDING ON CONSTRUCTION METHODS. CONTRACTOR TO DETERMINE ACTUAL LIMITS REQUIRED FOR CONSTRUCTION. CONTRACTOR SHALL REPLACE ALL EXISTING CONDITION (TREES, PLANTINGS, WALKS, PAVERS) THAT ARE DAMAGED DURING CONSTRUCTION TO THE ORIGINAL CONDITION. WALKS SHALL BE REMOVED TO THE NEAREST CONTROL JOINT.
2. TUNNEL LOCATION IS APPROXIMATE AND BASED ON EXISTING CAMPUS UTILITY MAP. CONTRACTOR TO FIELD VERIFY TUNNEL LOCATION AND ADJUST ACCESS ACCORDING TO ACTUAL LOCATION.
3. CONTRACTOR TO COORDINATE WITH ERIC GRAPE AT THE UNIVERSITY OF OREGON FOR UTILITY LOCATES PRIOR TO CONSTRUCTION. 541-346-2378

KEY NOTES

- 1 RESTORE LAWN IN ALL DISTURBED AREAS NOT RECEIVING A HARD SURFACE. LAWN TO MATCH EXISTING AND INCLUDE AT LEAST 12 INCHES OF ORGANIC TOPSOIL WITH AMENDMENTS. PROTECT SEEDED AREAS UNTIL PLANTING IS ESTABLISHED. SEE NOTE 1.
- 2 PROTECT EXISTING UTILITY. APPROXIMATE LOCATION. SEE NOTE 4.
- 3 PROTECT EXISTING PUBLIC PATH. PROVIDE SHORING AS REQUIRED TO KEEP WORK LIMITS OUT OF PATH. SEE NOTE 1.
- 4 PROPOSED 2'X2' TUNNEL ACCESS FOR UTILITY PIPE INSTALLATION. FIELD ADJUST ACCESS SIZE AND LOCATION AS REQUIRED TO AVOID UTILITY CONFLICTS OR MITIGATE SURFACE RESTORATIONS. SEE NOTE 3.

REVISION	BY



UNIVERSITY OF OREGON



ISSUED FOR CONSTRUCTION - MAY 8, 2013

UNIVERSITY OF OREGON  
 CAMPUS CENTRAL TUNNEL WATER LINE REPAIR  
 1217 UNIVERSITY OF OREGON  
 EUGENE, OR 97403-1217

SHEET TITLE  
 SOUTH ACCESS PLAN

DATE	5/8/13
SCALE	AS SHOWN
ENGR	MK
DRWN	AF
CHKD	MK
APPR	MK
JOB	08100.09

C2.1  
 SHEET OF





# DRAWING INDEX

S0.01 GENERAL STRUCTURAL NOTES, SPECIAL INSPECTIONS AND TESTING, DRAWING INDEX AND ABBREVIATIONS

S2.01 TUNNEL SITE PLAN

S5.01 DETAILS

# GENERAL STRUCTURAL NOTES

STRUCTURAL DRAWINGS ARE A PORTION OF THE CONTRACT DOCUMENTS AND ARE INTENDED TO BE USED WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS FROM THESE DRAWINGS INTO THEIR SHOP DRAWINGS AND WORK.

THESE GENERAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.

**CODE REQUIREMENTS:**  
CONFORM TO THE 2010 OREGON STRUCTURAL SPECIALTY CODE (OSSC), BASED ON THE 2009 INTERNATIONAL BUILDING CODE (IBC).

**TEMPORARY CONDITIONS:**  
THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES.

CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.

**EXISTING CONDITIONS:**  
ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS SHALL BE FIELD VERIFIED. THE CONTRACTOR SHALL NOTIFY THE MECHANICAL ENGINEER OF ANY SIGNIFICANT DISCREPANCIES FROM CONDITIONS SHOWN ON THE DRAWINGS.

**DESIGN CRITERIA:**  
THE FOLLOWING LOADS AND ALLOWABLES WERE USED FOR DESIGN:

DESIGN CRITERIA	
GRAVITY SYSTEM CRITERIA	
BELOW, SIDEWALKS AND LANDSCAPING	250 PSF LL
GEOTECHNICAL CRITERIA	
DESIGN BASED ON REPORT BY:	GRI INC., DATED FEBRUARY 19, 2010 AS SUBMITTED FOR AND APPLIED TO DESIGN OF THE NEW MOSS STREET TUNNEL AND VAULT, CONSTRUCTED IN 2010
RETAINING WALLS - BRACED AT TOP	50 PCF (EQUIVALENT FLUID PRESSURE)
RETAINING WALLS - SEISMIC	10H (SEISMIC LATERAL EARTH PRESSURE)
ALLOWABLE SOIL PRESSURE:	2500 PSF WITH 1/2 INCREASE FOR SHORT TERM LOADING
SEISMIC CRITERIA	
OCCUPANCY CATEGORY	I
SEISMIC DESIGN CATEGORY	D
SITE CLASS	D
IMPORTANCE FACTOR	I <sub>p</sub> = 1.0
MCE SPECTRAL ACCELERATION	S <sub>s</sub> = 0.98 S <sub>1</sub> = 0.35
SITE COEFFICIENT	F <sub>a</sub> = 1.01 F <sub>v</sub> = 1.45

**SPECIAL INSPECTION AND TESTING:**  
SPECIAL INSPECTION WILL BE PROVIDED BY THE OWNER BASED ON THE REQUIREMENTS OF THE OSSC AS SUMMARIZED IN THE SPECIAL INSPECTION AND TESTING PROGRAM ON SHEET S0.01. CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE AND ACCESS FOR THE SPECIAL INSPECTOR TO PERFORM THESE INSPECTIONS.

**SUBMITTALS:**  
SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION AND CONSTRUCTION OF ALL STRUCTURAL ITEMS, INCLUDING THE FOLLOWING:

SUBMITTALS			
ITEM	SUBMITTAL (1,4)	DEFERRED SUBMITTAL (2,4)	COMMENTS
CONCRETE MIX DESIGNS	X		
CONCRETE REINFORCEMENT	X		
CONCRETE ANCHORAGES	X		
EMBEDDED STEEL ITEMS	X		
MEP EQUIPMENT ANCHORAGE AND BRACING		X	REF. NOTES

- FOOTNOTES:**
- SHOP DRAWINGS SHALL BE SUBMITTED TO FABRICATION AND CONSTRUCTION OF STRUCTURAL ITEMS. IF THE SHOP DRAWINGS DIFFER FROM OR ADD TO THE DESIGN OF THE STRUCTURAL DRAWINGS, THEY SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON. ANY CHANGES TO THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ARE SUBJECT TO REVIEW AND ACCEPTANCE OF THE STRUCTURAL ENGINEER.
  - DESIGN DRAWINGS, SHOP DRAWINGS, AND CALCULATIONS FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED BY OTHERS SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON, AND SHALL BE SUBMITTED PRIOR TO FABRICATION. CALCULATIONS SHALL BE INCLUDED FOR ALL CONNECTIONS TO THE STRUCTURE, CONSIDERING LOCALIZED EFFECTS ON STRUCTURAL ELEMENTS INDUCED BY THE CONNECTION LOADS. DESIGN SHALL BE BASED ON THE REQUIREMENTS OF THE OSSC AND AS NOTED UNDER "DESIGN CRITERIA".
  - THE CONTRACTOR SHALL COORDINATE SEISMIC RESTRAINTS OF MECHANICAL, PLUMBING, AND ELECTRICAL EQUIPMENT, MACHINERY, AND ASSOCIATED PIPING WITH THE STRUCTURE. CONNECTIONS TO STRUCTURE SHALL CONFORM TO ASCE 7-05 CHAPTER 13, BE DESIGNED BY AN ENGINEER REGISTERED IN THE STATE OF OREGON, AND SHALL BE SUBMITTED PRIOR TO FABRICATION.
  - FIELD ENGINEERED DETAILS DEVELOPED BY THE CONTRACTOR THAT DIFFER FROM OR ADD TO THE STRUCTURAL DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON AND SHALL BE SUBMITTED PRIOR TO CONSTRUCTION.

**CONCRETE:**  
CONCRETE WORK SHALL CONFORM TO CHAPTER 19 OF THE OSSC. CONCRETE STRENGTHS SHALL BE VERIFIED BY STANDARD 28-DAY CYLINDER TESTS PER ASTM C39, AND SHALL BE AS FOLLOWS:

CONCRETE STRENGTHS		
f <sub>c</sub> (PSI)	ABSOLUTE WATER-CEMENT RATIO BY WEIGHT	USE
4,000	.50	ALL USES

MINIMUM CEMENT CONTENT PER CUBIC YARD SHALL BE AS FOLLOWS:

CEMENT CONTENT	
f <sub>c</sub> (PSI)	MINIMUM CEMENT PER CUBIC YARD
4,000	550 LBS.

FLASH CONFORMING TO ASTM C818 (INCLUDING TABLE 2A) TYPE F OR TYPE C MAY BE USED TO REPLACE UP TO 20% OF THE CEMENT CONTENT, PROVIDED THAT THE MIX STRENGTH IS SUBSTANTIATED BY TEST DATA.

THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS ALONG WITH TEST DATA COMPLIANT WITH OSSC SECTION 1905 A MINIMUM OF TWO WEEKS PRIOR TO PLACING CONCRETE. NO WATER MAY BE ADDED TO CONCRETE IN THE FIELD UNLESS SPECIFICALLY APPROVED IN WRITING BY THE CONCRETE SUPPLIER IN CONJUNCTION WITH THE CONCRETE MIX DESIGN.

A WATER-REDUCING ADMIXTURE CONFORMING TO ASTM C494 USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS SHALL BE INCORPORATED IN CONCRETE DESIGN MIXES. A HIGH-RANGE WATER-REDUCING (HRWR) ADMIXTURE CONFORMING TO ASTM C494 TYPE F OR G MAY BE USED IN CONCRETE MIXES PROVIDING THAT THE SLUMP DOES NOT EXCEED 10".

WHERE NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE, THE EXISTING CONCRETE SURFACE SHALL BE CLEANED AND ROUGHENED TO A MINIMUM 1/4" AMPLITUDE. PROVIDE 3/4" CHAMFERS ON ALL EXPOSED CONCRETE EDGES, UNLESS NOTED OTHERWISE.

VERIFY ALL BLOCK OUTS WITH MECHANICAL, ELECTRICAL, AND PLUMBING REQUIREMENTS.

**SHORING AND RE-SHORING:**  
SHORING AND RE-SHORING DESIGN IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL CONFORM TO ACI 347-04 AND ACI 347.2R-05. SHORING AND SUPPORTING FORMWORK SHALL NOT BE REMOVED FROM HORIZONTAL MEMBERS BEFORE CONCRETE STRENGTH IS AT LEAST 70 PERCENT OF DESIGN STRENGTH, AS DETERMINED BY FIELD CURED CYLINDERS. IN ADDITION, SHORING SHALL NOT BE REMOVED SOONER THAN THE FOLLOWING:

SHORING AND RE-SHORING		
ELEMENT	MINIMUM REMOVAL TIME	COMMENTS
JOIST, BEAM OR GIRDER SOFFITS LESS THAN 10'-0" CLEAR SPAN OVER 20'-0"	7 DAYS 21 DAYS	REMOVAL TIME MAY BE HALF OF THAT SHOWN WHERE FORMS WILL BE REMOVED WITHOUT DISTURBING SHORES. (3 DAYS MINIMUM)
ONE-WAY FLOOR SLABS LESS THAN 10'-0" CLEAR SPAN 10'-0" TO 20'-0"	4 DAYS 7 DAYS	REMOVAL TIME MAY BE HALF OF THAT SHOWN WHERE FORMS WILL BE REMOVED WITHOUT DISTURBING SHORES. (3 DAYS MINIMUM)

**REINFORCING STEEL:**  
REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, FOR DEFORMED BARS AND ASTM A185 FOR SMOOTH WELDED WIRE FABRIC (WWF), UNLESS OTHERWISE NOTED. REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING STEEL SHALL BE SECURELY TIED IN PLACE WITH #16 ANNEALED IRON WIRE.

BARS IN SLABS SHALL BE SUPPORTED ON WELL-CURED CONCRETE BLOCKS OR APPROVED METAL CHAIRS, AS SPECIFIED BY THE CRSI MANUAL OF STANDARD PRACTICE, MSP-1. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES," ACI 315. LAP ALL REINFORCING BARS PER THE TYPICAL LAP SPLICE LENGTH SCHEDULES, EXCEPT AS NOTED ON DRAWINGS. USE LAP LENGTH FOR SMALLER BAR WHEN SPLICING DIFFERENT BAR SIZES. MECHANICAL SPLICES NOTED ON THE PLANS SHALL BE DAYTON SUPERIOR BAR-LOCK (ICC ESR-2495) OR TAPERLOCK COUPLERS (ICC ESR-2481) OR APPROVED WITH A CURRENT ICC APPROVAL REPORT.

TYP. WALL AND SLAB LAP SPLICE LENGTH SCHEDULE (IN.)		
(DOES NOT APPLY TO VERTICAL SHEAR WALL BOUNDARY REINFORCEMENT)		
BAR SIZE	4000 PSI	
	CASE 1	CASE 2
#3	16	16
#4	20	18
#5	28	24
#6	37	28
#7	60	40
#8	74	46
#9	90	57
#10	108	70
#11	127	83

- NOTES:**
- CASE 1 APPLIES TO BAR WITH CLEAR COVER < 1 1/2". CASE 2 APPLIES TO BAR WITH CLEAR COVER ≥ 1 1/2".
  - FOR CENTER-TO-CENTER SPACING LESS THAN 4db MULTIPLY LAP LENGTHS ABOVE BY 1.3.
  - FOR TOP BARS, CAST ABOVE 12" OF CONCRETE, MULTIPLY LAP LENGTHS ABOVE BY 1.3.

REINFORCING STEEL SHALL HAVE PROTECTION AS FOLLOWS:

REINFORCING STEEL CONCRETE COVER	
USE	COVER
SLAB BARS	1"
WALL BARS: INTERIOR FACES	3/4"
WALL BARS: EXPOSED TO EARTH OR WEATHER	1 1/2" (#5 AND SMALLER) 2" (#6 AND LARGER)

CONCRETE ACCESSORIES

APPROVED POST INSTALLED ANCHORS		
ANCHORS	TYPE	ALTERNATE
EXPANSION	HILTI KWIK BOLT TZ (ICC ESR-1917)	SIMPSON STRONG-BOLT Z (ICC ESR-3037)
CONCRETE SCREW	HILTI KWIK HUS-EZ (ICC ESR-3027)	SIMPSON TITEN HD (ICC ESR-2713)
EPOXY ADHESIVE	HILTI HIT-RE 500SD (ICC ESR-2322)	SIMPSON SET-XP (ICC ESR-2508)

ALL ANCHORS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION. ANCHORS EXPOSED TO EARTH OR WEATHER SHALL BE PROTECTED FROM CORROSION BY HOT-DIP GALVANIZING OR USE OF STAINLESS STEEL.

PERMANENTLY EXPOSED EMBEDDED PLATES AND ANGLES SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE NOTED. NO LOADS OR WELDS SHALL BE PLACED ON EMBEDDED PLATES OR ANGLES FOR A MINIMUM OF 7 DAYS AFTER CASTING.

**STRUT SYSTEMS:**

- METAL FRAMING SYSTEMS SHALL BE MANUFACTURED BY:  
UNISTRUT CORP. 35860 CLINTON ST. WAYNE, MI 48184 800-521-7730  
APPROVED SUBSTITUTES:  
HILTI INSTALLATION SYSTEMS 5400 S 122ND EAST AVE. TULSA, OK 74146
- CHANNELS  
A. CHANNELS SHALL BE COLD-FORMED CARBON STEEL  
PLAIN: ASTM A1011, GRADE 33 OR A653 GRADE 33  
MATERIAL THICKNESS: 12GA U.O.N.  
DIMENSIONS:  
P1000: 1 1/2" X 1 1/2"  
P5500: 1 1/2" X 2 1/4"  
P1001: 1 1/2" X 3 1/2"  
P501: 1 1/2" X 4 1/2"  
FINISHES: PG OR GR  
APPROVED SUBSTITUTES:  
HILTI HS 158-12  
HILTI HS 2716-12  
HILTI MS-41D  
NONE  
B. CHANNELS SHALL HAVE A CONTINUOUS SLOT ALONG ONE SIDE WITH INTURNED LIPS.  
C. SECURE ATTACHMENT IS MADE TO THE FRAMING MEMBER WITH THE USE OF HARDENED, TOOTHED SLOTTED NUTS (CHANNEL NUTS) THAT ENGAGE THE INTURNED LIPS.
- FITTINGS (UNISTRUT ONLY; HILTI NOT PRE-APPROVED, U.N.O. ON DRAWINGS.)  
A. FITTINGS SHALL BE PUNCHED FROM HOT ROLLED PLATE STEEL PLATE CONFORMING TO ASTM A635 OR A36.  
a. HOLE SIZE: 3/4" DIAMETER  
b. HOLE SPACINGS: 3/8" FROM ENDS AND 1 1/2" ON CENTER  
c. WIDTH: 1 1/2"  
d. THICKNESS: 3/4"
- CHANNEL NUTS  
A. CHANNEL NUTS SHALL BE FROM SAME MANUFACTURER AS CHANNELS. DO NOT MIX HILTI NUTS WITH UNISTRUT CHANNEL OR VICE VERSA.  
B. CHANNEL NUTS SHALL MEET THE REQUIREMENTS OF ASTM A1011 SS GR. 33.  
C. CHANNEL NUTS SHALL HAVE TWO TOOLED GROOVES IN THE TOP OF THE NUT TO ENGAGE THE INTURNED LIPS OF THE CHANNEL AND, AFTER BOLTING OPERATIONS ARE COMPLETED, WILL PREVENT ANY LONGITUDINAL MOVEMENT OF THE BOLT AND NUT.
- BOLTS, SCREWS AND NUTS  
A. ALL BOLTS, SCREWS AND NUTS SHALL MEET OR EXCEED ASTM A307 AND SEA J429, GRADE 2 AND HAVE A UNIFIED THREAD.  
B. RECOMMENDED INSTALLATION TORQUES:  
BOLT SIZE 3/8-16 1/2-13  
FOOT-LBS. 19 (15) 50 (30)

# SPECIAL INSPECTIONS AND TESTING PROGRAM

TABLE 1 - REQUIRED STRUCTURAL SPECIAL INSPECTIONS					
SYSTEM OR MATERIAL	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	INSPECTION		REMARKS
			FREQUENCY (NOTE 5)		
			CONTINUOUS	PERIODIC	
FABRICATORS					
CONCRETE					
REINFORCING STEEL AND (POST TENSIONED/PRE-TENSIONED) TENDON PLACEMENT	1704.4 1907.5 1913.4	ACI 318 1.3.2C ACI 318 3.5 ACI 318 7.1 TO 7.7		X	TOLERANCE AND REINFORCING PLACEMENT PER ACI 7.5
WELDING REINFORCING STEEL	1704.3.1 1903.1	ACI 318 3.5.2 AWS D1.4, SECTION 7			REFER TO STEEL FOR WELDING REQUIREMENTS
1. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706	TABLE 1704.4	AWS D1.4 ACI 318: SECTION 3.5.2		X	
PLACEMENT OF CAST-IN-PLACE ANCHOR BOLTS	1704.4 1911.1 1912.1	ACI 318 1.3.2C ACI 318 21.1.8	X		ALL BOLTS VISUALLY INSPECTED
VERIFYING USE OF REQUIRED MIX DESIGN(S)	1704.4 1904 1905.2-4 1913.2 1913.3	ACI 318 1.3.2A ACI 318, CHAPTER 4 ACI 318 5.2-5.4		X	
CONCRETE PLACEMENT, NON-SHRINK GROUT	1704.4 1905.9-10	ACI 318 1.3.2D ACI 318 5.9-5.10	X		
CONCRETE/SHOTCRETE CURING	1704.4 1905.11-13 1913.9	ACI 318 1.3.2D ACI 318 5.11-5.13		X	
VERIFICATION OF IN-SITU CONCRETE PRIOR TO REMOVAL OF FORMS AND SHORES FROM ELEVATED BEAMS AND SLABS	1704.4 1906.2	ACI 318 6.2		X	
VERIFICATION OF FORMWORK	1704.4 1906.1	ACI 318 6.1.1		X	SPECIAL INSPECTIONS APPLY TO SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED
REINFORCING STEEL MECHANICAL COUPLERS, TERMINATORS AND FORMSAVERS		ICC EVALUATION REPORTS		X	
POST INSTALLED CONCRETE ANCHORS					
EXPANSION ANCHORS INSTALLATION IN HARDENED CONCRETE AND COMPLETED MASONRY	1703.4.2 1704.15 1912.1	ICC EVALUATION REPORT ACI 318: 3.8.6, 21.1.8	X	X (NOTE 6)	INSPECTION REQUIREMENTS PER ICC EVALUATION REPORT
EPOXY ANCHORS INSTALLATION IN HARDENED CONCRETE AND COMPLETED MASONRY			X		INSPECTION REQUIREMENTS PER ICC EVALUATION REPORT

TABLE 2 - REQUIRED TESTING FOR SPECIAL INSPECTIONS					
SYSTEM OR MATERIAL	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	TESTING		REMARKS
			FREQUENCY		
			CONTINUOUS	PERIODIC	
CONCRETE					
CONCRETE STRENGTH	1903 1704.4 1905.6	ASTM C39			EACH 150 CY NOR LESS THAN EACH 5000 SF OF SLAB OR WALL PLACED EACH DAY FABRICATE SPECIMENS AT TIME FRESH CONCRETE IS PLACED
CONCRETE SLUMP		ASTM C143			
CONCRETE AIR CONTENT		ASTM C231			
CONCRETE TEMPERATURE		ASTM C1064			

**STATEMENT OF SPECIAL INSPECTION NOTES:**

- SPECIAL INSPECTIONS SHALL CONFORM TO SECTION 1704 OF THE 2010 OSSC. REFER TO TABLE 1 FOR SPECIAL INSPECTION AND TABLE 2 FOR TESTING REQUIREMENTS.
- SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY MEETING THE REQUIREMENTS OF ASTM E329 (MATERIALS), ASTM D3740 (SOILS), ASTM C1077 (CONCRETE), ASTM A890 (STEEL), AND ASTM E543 (NON-DESTRUCTIVE). THE INSPECTION AND TESTING AGENCY SHALL FURNISH TO THE STRUCTURAL ENGINEER A COPY OF THEIR SCOPE OF ACCREDITATION. SPECIAL INSPECTORS SHALL BE CERTIFIED BY THE BUILDING OFFICIAL. WELDING INSPECTORS SHALL BE QUALIFIED PER SECTION 6.1.4.1.1 OF AWS D1.1.
- THE SPECIAL INSPECTOR SHALL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION AND NOTED IN THE INSPECTION REPORTS.
- THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS FOR EACH INSPECTION TO THE BUILDING OFFICIAL, STRUCTURAL ENGINEER, CONTRACTOR, AND OWNER. THE SPECIAL INSPECTION AGENCY SHALL SUBMIT A FINAL REPORT STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS INSPECTED AND IS IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THAT ALL DISCREPANCIES NOTED IN THE INSPECTION REPORTS HAVE BEEN CORRECTED.
- CONTINUOUS INSPECTION. THE FULL-TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED.
- PERIODIC INSPECTION. THE PART-TIME OR INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK.
- WHERE PERIODIC INSPECTION IS ALLOWED IN ACCORDANCE WITH AN EXPANSION ANCHOR'S ICC EVALUATION REPORT, INSPECTIONS SHALL BE AS FOLLOWS:  
FOR ALL ANCHORS, PRIOR TO CONCEALMENT, VERIFY: ANCHOR TYPE, ANCHOR DIMENSIONS, ANCHOR SPACING AND EDGE DISTANCES.  
FOR EACH ANCHOR TYPE AND SIZE, INSPECTOR SHALL BE ONSITE TO CONTINUOUSLY INSPECT A MINIMUM OF THE FIRST 10 ANCHORS INSTALLED BY EACH INSTALLER FOR CONFORMANCE WITH ICC EVALUATION REPORT. PROVIDED ALL ANCHORS ARE INSTALLED CORRECTLY PER MANUFACTURER'S INSTRUCTIONS, PROVIDE PERIODIC INSPECTION ON A MINIMUM OF 10% OF THE NEXT 1000 ANCHORS BY EACH INSTALLER AND A MINIMUM OF 5% OF THE REMAINING ANCHORS BY EACH INSTALLER. INSPECTIONS SHALL OCCUR A MINIMUM OF ONCE PER WEEK AT A RANDOM TIME WHILE ANCHOR INSTALLATION IS ONGOING. ANY NON-COMPLIANCE ISSUES SHALL RESET THE INSPECTION REQUIREMENTS TO TEN (10) CONTINUOUS INSPECTIONS. NON-COMPLIANT ANCHORS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD FOR REVIEW AND SHALL BE BROUGHT INTO COMPLIANCE BY EITHER TESTING OR RE-INSTALLATION.  
INSPECTION REPORTS SHALL IDENTIFY NAMES OF INSTALLERS.  
SPECIAL INSPECTOR SHALL PROVIDE DOCUMENTATION AT THE END OF ANCHOR INSTALLATIONS STATING THAT THE MINIMUM NUMBER OF ANCHORS WERE INSPECTED.

# ABBREVIATIONS

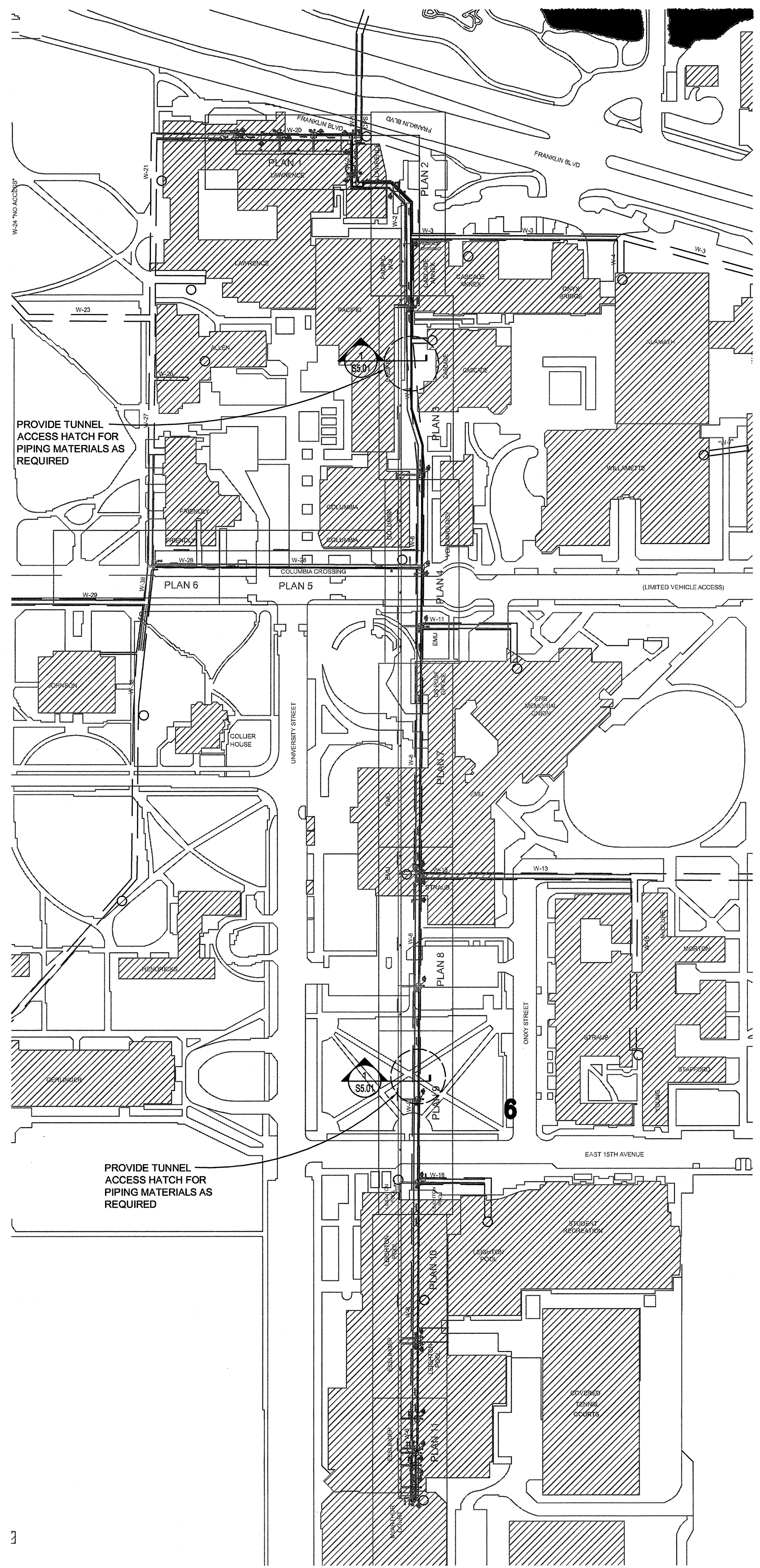
A.B.	ANCHOR BOLT	LONG.	LONGITUDINAL
ACI	AMERICAN CONCRETE INSTITUTE	LVF	LOW VELOCITY FASTENER
ADDL.	ADDITIONAL	MAX.	MAXIMUM
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL	MBMA	METAL BUILDING MANUFACTURERS ASSOCIATION
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION INCORPORATED	MECH.	MECHANICAL
ALT.	ALTERNATE	MFR.	MANUFACTURER
ALUM.	ALUMINUM	MIN.	MINIMUM
APA	AMERICAN PLYWOOD ASSOCIATION	MISC.	MISCELLANEOUS
ARCH.	ARCHITECT	MPH	MILES PER HOUR
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	MT	MAGNETIC PARTICLE TESTING
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	(N)	NEW
AWIS	AMERICAN WELDING SOCIETY	N.I.C.	NOT IN CONTRACT
BLDG.	BUILDING	NOM.	NOMINAL
BOT.	BOTTOM	NO.	NUMBER
BRBF	BUCKLING RESTRAINED BRACED FRAME	N.T.S.	NOT TO SCALE
C.G.	CENTER OF GRAVITY	o.c.	ON CENTER
C.I.P.	CAST IN PLACE	O.D.	OUTSIDE DIAMETER
C.J.	CONTROL JOINT	OPP.	OPPOSITE
C.J.P.	COMPLETE JOINT PENETRATION	OWJ	OPEN WEB JOIST
CL	CENTERLINE	PAF	POWDER ACTUATED FASTENER
CLR.	CLEAR	PART.	PARTITION
CMU	CONCRETE MASONRY UNIT	P/C	PRECAST
COL.	COLUMN	PCF	POUNDS PER CUBIC FOOT
CONC.	CONCRETE	PL	PLATE
CONN.	CONNECTION	P.P.	PARTIAL PENETRATION
CONST.	CONSTRUCTION	PSI	POUNDS PER SQUARE INCH
CONT.	CONTINUOUS	P/T	POST-TENSIONED
db	BAR DIAMETER	P.T.	PRESSURE TREATED
DBA	DEFORMED BAR ANCHOR	P.V.	POLYVINYL CHLORIDE
DET.	DETAIL	R, RAD.	RADIUS
DIA., Ø	DIAMETER	RCSC	RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS
DIAG.	DIAGONAL	REF.	REFERENCE
D.L.	DEAD LOAD	REIN.	REINFORCING
DWG.	DRAWING	REQD.	REQUIRED
ELEC.	ELECTRICAL	REQMTS.	REQUIREMENTS
EL.	ELEVATION	SCHED.	SCHEDULE
EQ.	EQUAL	S.C.	SLIP CRITICAL
EXIST., (E)	EXISTING	SIM.	SIMILAR
EXP.	EXPANSION	SLRS	SEISMIC LOAD RESISTING SYSTEM
EXT.	EXTERIOR	S.O.G.	SLAB ON GRADE
FDN.	FOUNDATION	SPEC.	SPECIFICATION
FIN.	FINISH	SO.	SQUARE
FLR.	FLOOR	SS	STAINLESS STEEL
FT.	FOOT	SSMA	STEEL STUD MANUFACTURERS ASSOCIATION
FG.	FOOTING	STD.	STANDARD
G.A.	GAUGE	STRUCT.	STRUCTURAL
GALV.	GALVANIZED	SYM.	SYMMETRICAL
GL	GLULAM	THRU	THROUGH
HORIZ.	HORIZONTAL	T&G	TONGUE AND GROOVE
HSS	HOLLOW STRUCTURAL SECTION	TJ	TRUSS JOIST
IBC	INTERNATIONAL BUILDING CODE	TRANS.	TRANSVERSE
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS	TS	LIGHT GAUGE TUBE STEEL
ICC	INTERNATIONAL CODE COUNCIL	TYP.	TYPICAL
ID.	INSIDE DIAMETER	U.N.O.	UNLESS NOTED OTHERWISE
INT.	INTERIOR	UT	ULTRASONIC TESTING
K	KIPS	VERT.	VERTICAL
KSF	KIPS PER SQUARE FOOT	V.I.F.	VERIFY IN FIELD
KSI	KIPS PER SQUARE INCH	w/	WITH
LBS.	POUND	WF	WIDE FLANGE
L.L.	LIVE LOAD	w/o	WITHOUT
LLH	LONG LEG HORIZONTAL	W.P.	WORK POINT
LLV	LONG LEG VERTICAL	WPS	WELDING PROCEDURE SPECIFICATION
LOC.	LOCATION	WWF	WELDED WIRE FABRIC

REVISION BY

WOOD HARBINGER Mechanical and Electrical Engineers Bellevue, WA

111 SW 5th Avenue Portland, OR 9



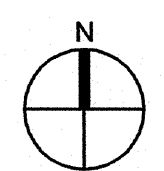


- NOTES:**
1. (E) INDICATES EXISTING.
  2. ——— INDICATES EXISTING STRUCTURE.
  3. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION AND ERECTION. NOTIFY PRIME CONSULTANT OF ANY SIGNIFICANT DISCREPANCIES FROM THAT SHOWN ON THE DRAWINGS.
  4. CONTRACTOR TO SHORE AND BRACE ALL EXISTING FRAMING AS REQUIRED FOR DEMOLITION AND RE-FRAMING WORK.
  5. REF. 2/SS.01 FOR TYPICAL PIPE SUPPORT DETAIL.

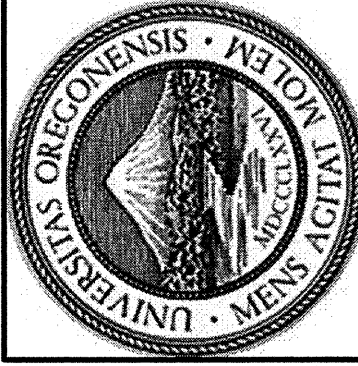

1

**CAMPUS CENTRAL WATER LINE REPAIR - TUNNEL SITE PLAN**

1"=100'



**ISSUED FOR CONSTRUCTION - MAY 8, 2013**

<p><b>WOOD HARBINGER</b> Mechanical and Electrical Engineers Bellevue, WA</p> <p><b>kpf</b> Consulting Engineers</p> <p>111 SW 6th Avenue Portland, Oregon 97204 503.227.6261</p>	<p><b>UNIVERSITY OF OREGON</b></p>   <p>EXPIRES 12-31-14</p>
<p>UNIVERSITY OF OREGON CAMPUS CENTRAL TUNNEL WATER LINE REPAIR 1721 UNIVERSITY OF OREGON EUGENE, OR 97403-1217</p>	<p>CAMPUS CENTRAL TUNNEL WATER LINE REPAIR TUNNEL SITE PLAN</p>
<p>DATE 05/08/13</p> <p>SCALE AS SHOWN</p> <p>ENGR AN</p> <p>DRWN DEJ</p> <p>CHKD AN</p> <p>APPR MBM</p> <p>JOB 08100.09</p>	<p>SHEET TITLE</p> <p><b>S2.01</b></p> <p>SHEET OF</p>







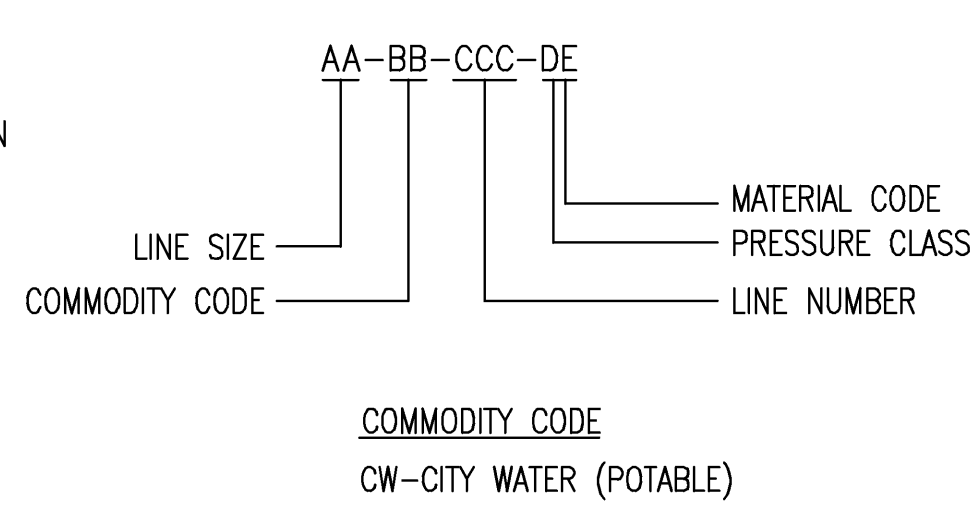
**GENERAL SYMBOLS**

- LIGHT LINE INDICATES BACKGROUND
- LIGHT LINE INDICATES EXISTING WORK
- HEAVY LINE INDICATES NEW WORK
- HEAVY LINE INDICATES HIDDEN NEW WORK
- EXISTING WORK TO BE REMOVED
- NEW EQUIPMENT
- FUTURE PIPE, EQUIPMENT, OR DUCTWORK
- PIPE TURNING UP OR TOWARDS
- PIPE TURNING DOWN OR AWAY
- MATCHLINE OR PROPERTY LINE
- LINE CONTINUATION
- VALVE TAG
- POINT OF CONNECTION
- TIE-POINT CONNECTION
- FLAG NOTE
- PIPE ANCHOR (PA)
- PIPE GUIDE (PG)
- PIPE HANGER (PH)
- PIPE ROLLER (PR)
- PIPE SLIDE (PS)
- FLOOR STANCHION SUPPORT (FSS)
- SLOPE DIRECTION

**PIPING SYMBOLS**

- FLANGE UNION
- THREADED ADAPTER UNION
- GATE VALVE THREADED
- GATE VALVE FLANGED
- BUTTERFLY VALVE
- BALL VALVE
- POSITIVE DISPLACEMENT FLOW ELEMENT
- ANTI-SIPHON HOSE BIBB
- REDUCER OR BUSHING
- CAP OR PLUG
- VENT
- DRAIN

**PIPE LINE DESIGNATIONS**



**ABBREVIATIONS**

- ASSY ASSEMBLY
- AUX AUXILIARY
- BLDG BUILDING
- BOP BOTTOM OF PIPE
- CO CLEAN OUT
- CONN CONNECTION
- CPS CENTRAL POWER STATION
- CS CARBON STEEL
- DCVA DOUBLE-CHECK VALVE ASSEMBLY
- DIA DIAMETER
- DN DOWN
- (E) EXISTING
- ELEC ELECTRICAL
- EXIST EXISTING
- ECC ECCENTRIC
- ELEV ELEVATION
- EQUIP EQUIPMENT
- EWEB EUGENE WATER AND ELECTRIC BOARD
- FB FLAT BAR
- FD FLOOR DRAIN
- FLEX FLEXIBLE
- FLR FLOOR
- GALV GALVANIZED
- H HIGH
- L LONG
- MAX MAXIMUM
- MFR MANUFACTURER
- MIN MINIMUM
- NA NOT APPLICABLE
- OC ON CENTER
- OD OUTSIDE DIAMETER
- PA PIPE ANCHOR
- P&ID PIPING AND INSTRUMENTATION DIAGRAM
- POC POINT OF CONNECTION
- PRES PRESSURE
- PRV PRESSURE REDUCING VALVE
- PG PIPE GUIDE
- PH PIPE HANGER
- PS PIPE SLIDE
- PSV PRESSURE SAFETY VALVE
- RED REDUCER
- REF REFERENCE
- REQ REQUIRED
- (R) RELOCATED
- SCH SCHEDULE
- SPEC SPECIFICATIONS
- SO SQUARE
- SR SHORT RADIUS
- SS STAINLESS STEEL
- TEMP TEMPERATURE
- THK THICK
- TOC TOP OF CONCRETE
- TYP TYPICAL
- VTA VENT TO ATMOSPHERE
- W WIDE
- WT WEST TUNNEL

**DDC INSTRUMENTATION AND CONTROL DEVICES**

- (2P) TWO POSITION
- (A) SUMMARY ALARM
- (AF) ALARM FAULT
- (AH) ALARM HORN
- (AI) ANALOG INPUT
- (AO) ANALOG OUTPUT FROM DDC SYSTEM
- (AL) ALARM SIGNAL TO DDC SYSTEM
- (AMP) AMPS
- (AUX) AUXILIARY DEVICE OR CONTACT
- (CIV) CONTAMINATION ISOLATION VALVE
- (CO) CARBON MONOXIDE SENSOR
- (CO2) CARBON DIOXIDE SENSOR
- (CR) CONTROL RELAY
- (CS) CURRENT SENSOR
- (CSR) CURRENT SENSING RELAY
- (CT) CURRENT TRANSMITTER
- (DI) DISCRETE INPUT
- (DO) DISCRETE OUTPUT
- (DPS) DIFFERENTIAL PRESSURE SWITCH
- (DPT) DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER
- (DPV) DIFFERENTIAL PRESSURE VALVE
- (DS) DOOR SWITCH
- (ENB) ENABLE/DISABLE
- (ES) EMERGENCY SHUTDOWN SWITCH
- (FCD) FLOW CONTROL DAMPER
- (FCV) FLOW CONTROL VALVE
- (FM) FLOW METER
- (FPT) FREEZE PROTECTION THERMOSTAT
- (FS) FLOW SWITCH
- (FSL) FLOW SWITCH (LOW)
- (FSH) FLOW SWITCH (HIGH)
- (FT) FLOW TRANSMITTER
- (FQ) FLOW TOTALIZER
- (GG) GAS GENERATOR
- (HHS) HIGH HUMIDITY SWITCH
- (HS) HUMIDITY SENSOR/TRANSMITTER
- (HT) HUMIDITY TRANSMITTER
- (HZ) HERTZ
- (IL) INDICATING LIGHT
- (IQ) QUANTITY INDICATION
- (JC) EQUIPMENT CONTROLLER OUTPUT CONTROL
- (JS) MOTOR POWER USAGE TRANSDUCER
- (JT) SETPOINT RESET
- (K) KILOWATTS
- (KWH) KILOWATT HOURS
- (LD) LEAK/LEVEL DETECTOR
- (LI) LEVEL INDICATION
- (LS) LEVEL SWITCH
- (LSH) LEVEL SWITCH (HIGH)
- (LSL) LEVEL SWITCH (LOW)
- (LT) LEVEL TRANSMITTER
- (MOD) MODULATING
- (NOx) NITROUS OXIDE
- (OPS) OVER PRESSURE SWITCH
- (PAL) PRESSURE ALARM (LOW)
- (PB) MANUAL PUSH BUTTON SWITCH (SHIELDED AS SPECIFIED OR INDICATED)
- (PI) PRESSURE INDICATOR
- (PIC) PRESSURE INDICATING CONTROLLER
- (PM) PULSE METER OR INITIATOR
- (PS) PRESSURE SENSOR
- (PSH) PRESSURE SWITCH (HIGH)
- (PSL) PRESSURE SWITCH (LOW)
- (PL) PUMP LIGHT
- (PT) PRESSURE TRANSMITTER
- (QS) REFRIGERANT SWITCH
- (R) RELAY
- (RPM) REVOLUTIONS PER MINUTE TRANSMITTER
- (S) SPEED
- (SD) SMOKE DETECTOR
- (SH) SWITCH (HAND)
- (SL) LEVER HAND SWITCH
- (SPT) STATIC PRESSURE TRANSMITTER
- (SS) START/STOP SIGNAL FROM DDC SYSTEM
- (T) ZONE TEMPERATURE SENSOR/TRANSMITTER
- (TAL) TEMPERATURE ALARM (LOW)
- (TC) TEMPERATURE CONTROLLER
- (TCV) TEMPERATURE CONTROL VALVE
- (TDS) TOTAL DISSOLVED SOLIDS (THERMOMETER)
- (THS) COMBINATION TEMPERATURE AND HUMIDITY SENSOR
- (TI) TEMPERATURE INDICATOR
- (TONS) TONS COOLING
- (TS) TEMPERATURE SENSOR/TRANSMITTER
- (TSH) TEMPERATURE SWITCH (HIGH)
- (TSL) TEMPERATURE SWITCH (LOW)
- (TT) TEMPERATURE SENSOR/TRANSMITTER (PIPE OR DUCT)
- (XA) CONTROLLER FAILURE ALARM
- (YC) ENABLE
- (YI) CONTROLLER OR MOTOR CURRENT
- (YS) SPEED OR FREQUENCY (DDC INPUT)
- (YSC) SPEED CONTROL SIGNAL (DDC OUTPUT)
- (YY) CONTROLLER OR MOTOR STATUS
- (ZH) POSITION (HIGH)
- (ZIL) POSITION INDICATING (LOW)
- (ZL) POSITION (LOW)
- (ZSH) POSITION SWITCH (HIGH)
- (ZSL) POSITION SWITCH (LOW)
- (ZT) POSITION TRANSMITTER
- ( ) SAFETY DEVICE WITH HARD-WIRE SHUTDOWN

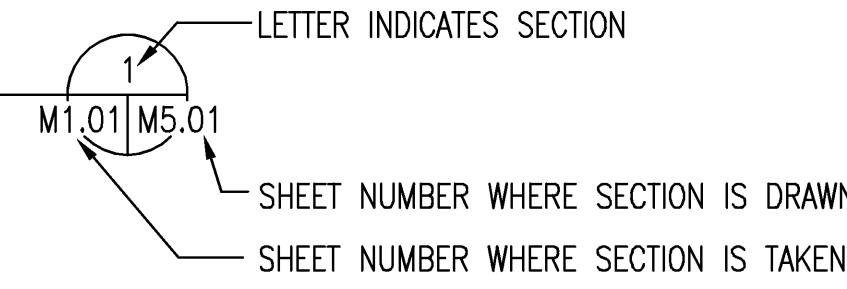
**GENERAL NOTES**

1. THE FOLLOWING NOTES APPLY TO ALL MECHANICAL DRAWINGS. ADDITIONAL GENERAL NOTES, WHICH SUPPLEMENT THE FOLLOWING NOTES, MAY BE PROVIDED ON INDIVIDUAL DRAWINGS.
2. PIPING PLANS DO NOT SHOW ALL PIPING, PIPE SUPPORTS, OR PIPING COMPONENTS. PROVIDE PIPING, VALVES, SPECIALTY ITEMS, INSTRUMENTATION, ETC. AS INDICATED ON THE PIPING & INSTRUMENT DIAGRAMS.
3. PROVIDE PLUG OR BLIND FLANGE ON ALL VALVE OPEN ENDS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF PHASING AND INSTALLATION OF ALL MECHANICAL WORK WITH THE WORK OF OTHER TRADES. THE CONTRACTOR SHALL BEAR THE TOTAL EXPENSE OF ADDITIONAL WORK THAT MAY BE CAUSED BY THE IMPROPER SEQUENCING OF CONSTRUCTION ACTIVITIES.
5. TEMPORARY PIPING: PROVIDE TEMPORARY PIPING AS REQUIRED TO LIMIT BUILDING WATER SERVICE INTERRUPTIONS TO 12 HOURS MAXIMUM ON EVENINGS OR WEEKENDS. PROVIDE DOMESTIC-WATER-RATED HOSE, PLASTIC PIPE, OR OTHER SUITABLE PIPING AS REQUIRED FOR TEMPORARY SERVICE.
6. REFER TO MECHANICAL DETAILS, DIAGRAMS, AND SPECIFICATIONS FOR REQUIRED SYSTEM FITTINGS, ACCESSORIES, CONTROL DEVICES, ETC. PREPARE SHOP DRAWINGS OF MECHANICAL SYSTEMS THAT ARE COORDINATED WITH THE APPROVED AND INSTALLED WORK OF ALL OTHER TRADES.
7. ARRANGE MECHANICAL SYSTEMS, EQUIPMENT, PIPING, AND ACCESSORIES SO THAT ACCESS CLEARANCES INDICATED BY THE DRAWINGS, REQUIRED BY APPLICABLE PORTIONS OF THE OREGON SPECIALTY CODE, NFPA 101, UFC, IMC, OSHA, AND AS RECOMMENDED BY MANUFACTURERS ARE PROVIDED.
8. PROVIDE SUPPORTS AND SEISMIC RESTRAINTS FOR ALL PIPE AND EQUIPMENT AS SPECIFIED, AS REQUIRED, AND AS INDICATED. PROVIDE ALL REQUIRED SUPPLEMENTARY STRUCTURAL STEEL, SUPPORTS, ATTACHMENTS, AND ANCHORAGES. PROVIDE ANCHOR BOLTS OF SIZE, TYPE, AND LENGTH AS REQUIRED.
9. ALL REQUIRED STRUCTURAL MEMBERS, BOLTS, AND WELDS SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) STEEL CONSTRUCTION MANUAL.
10. WELD PIPE SUPPORTS TO PIPE AND STRUCTURAL MEMBERS IN ACCORDANCE WITH THE PIPE SUPPORT MANUFACTURER'S RECOMMENDATIONS
11. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF PLUGGED DRAINS IN ALL PIPING LOW POINTS AND PLUGGED MANUAL VENTS AT ALL HIGH POINTS.

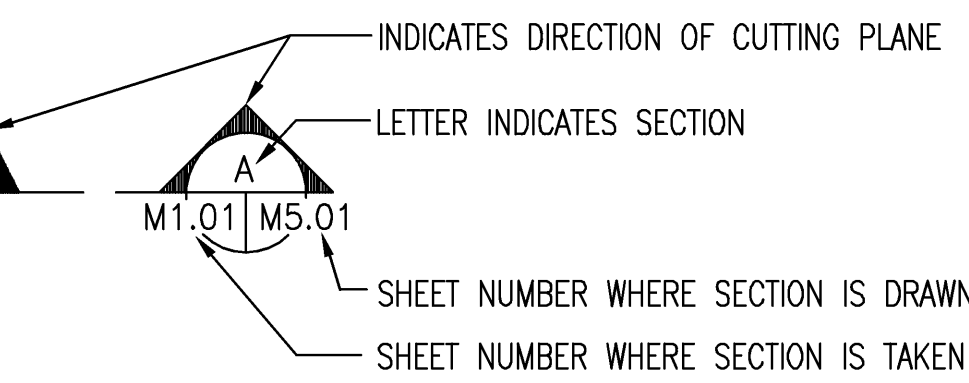
**DETAIL - TITLE ON DRAWING IDENTIFICATION**

**DETAIL**

SCALE: X" = XX'



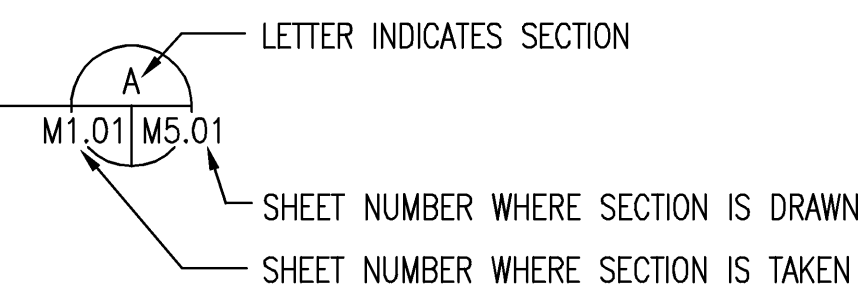
**SECTION IDENTIFICATION**



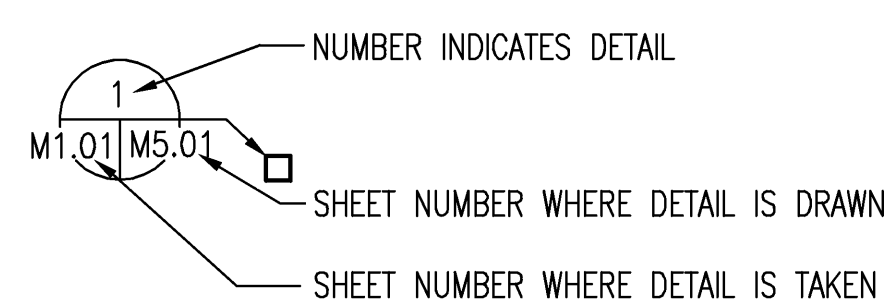
**SECTION - TITLE ON DRAWING IDENTIFICATION**

**SECTION**

SCALE: X" = XX'



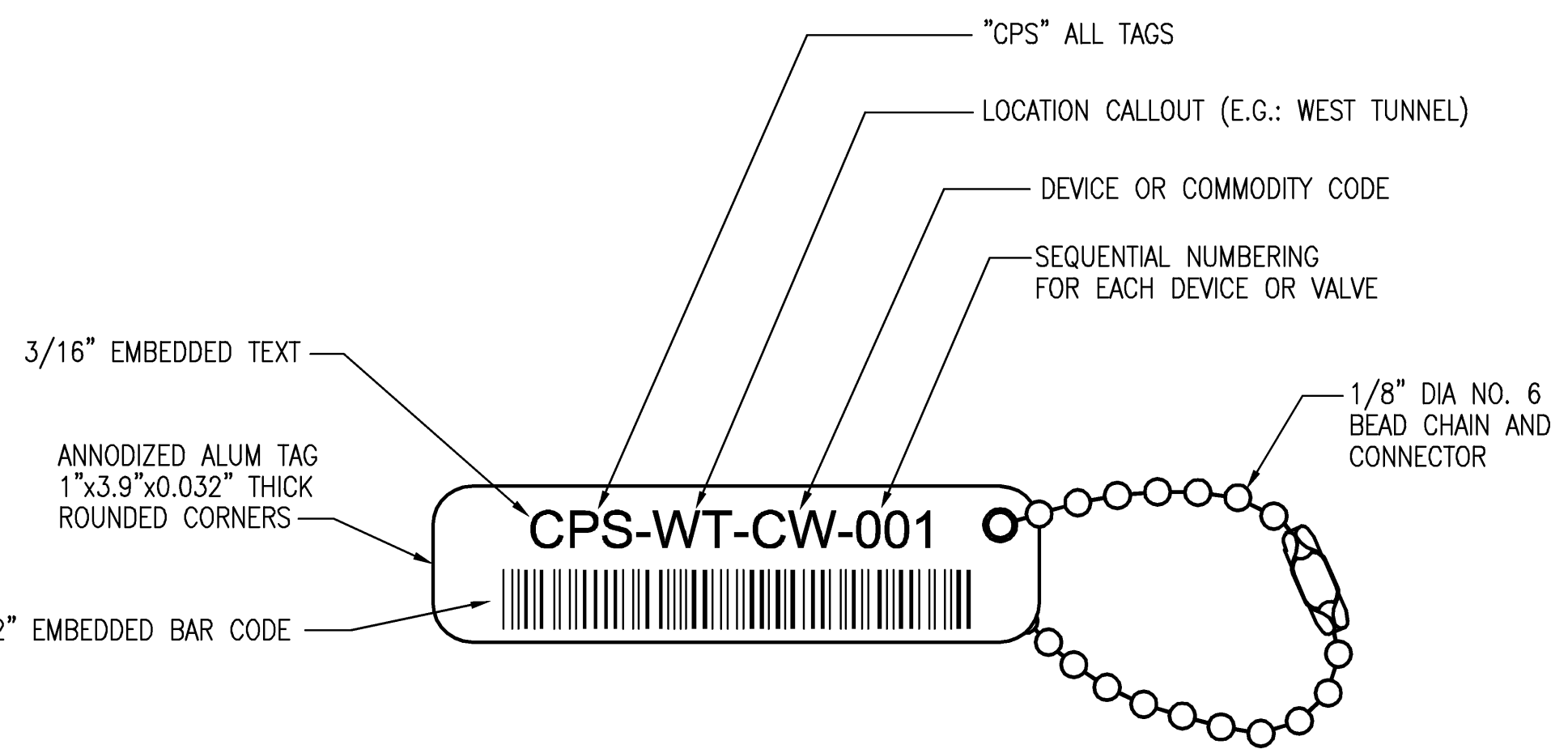
**DETAIL IDENTIFICATION**



**INSTRUMENTATION AND CONTROLS LEGEND**

INSTRUMENTATION IDENTIFICATION LETTERS				
FIRST LETTER		SUCCEEDING LETTER		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM	
B	BURNER/COMBUSTION			
C		CONTROL		CONTROL
D		DIFFERENTIAL		
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)	
F	FLOW RATE	RATIO		
G			GLASS	
H	HAND			HIGH
I	CURRENT		INDICATE	
J	POWER	SCAN		
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		
L	LEVEL		LIGHT	LOW
M		MOMENTARY		MIDDLE
O			ORIFICE	
P	PRESSURE		POINT (TEST) CONNECTION	
Q	QUANTITY	INTEGRATE, TOTALIZE		
R	RADIATION		RECORD	
S	SPEED	SAFETY		SWITCH
T	TEMPERATURE		TRANSMITTER	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION		VALVE/DAMPER	
W	WEIGHT/FORCE		WELL	
X	UNCLASSIFIED			
Y	EVENT, STATE OR PRESENCE		RELAY, COMPUTE, OR CONVERT	
Z	POSITION		DRIVER, ACTUATOR	

- (XXX) LOCAL INSTRUMENT
- (XXX) PANEL MOUNTED INSTRUMENT
- (XXX) EXISTING INSTRUMENTATION
- (XXX) SHARED HMI DISPLAY
- (XXX) INSTRUMENT FURNISHED WITH EQUIPMENT

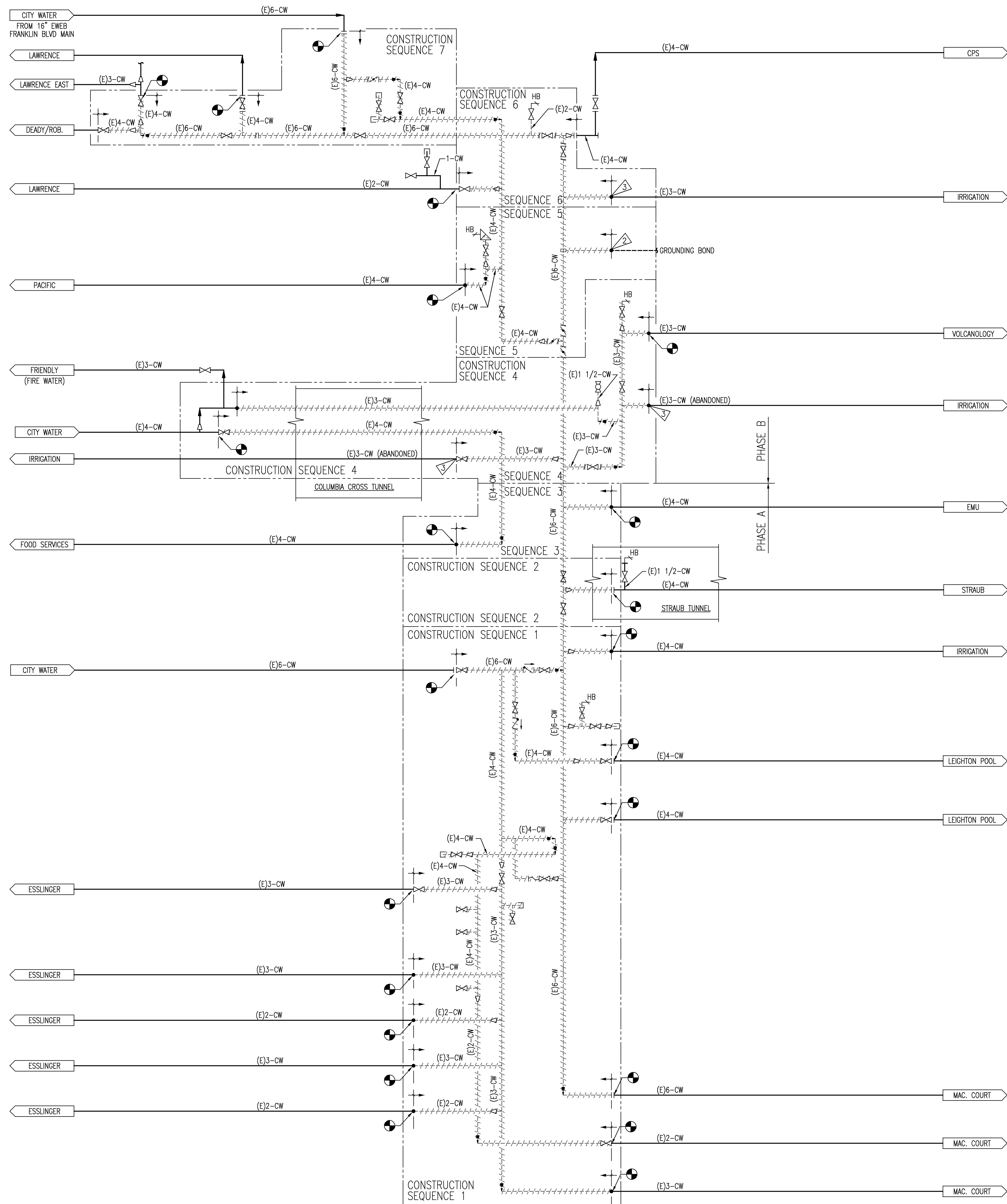


**VALVE / DEVICE TAG DETAIL**

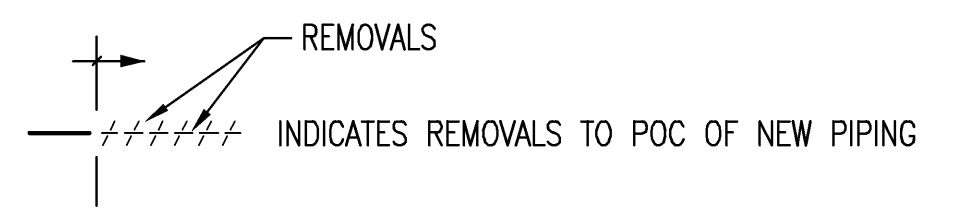
SCALE: NONE

JOB NAME: 09/07  
 REVISION: 05/08/10 at 09:29 am  
 FILE NAME: g:\2008\08100\03\dwg\m\ccwr-m0.01.dwg  
 ACCESSOR: KHON  
 ATTACHED SHEETS: TP-WH30x42  
 ATTACHED SHEET: NONE  
 PLOTTED BY: WARDEN  
 PLOTTER: 04/14/10 at 04:34 pm





**LEGEND**



**GENERAL NOTES**

1. SEE M0.01 FOR SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES.
2. REMOVE PIPING, VALVES, FITTINGS, AND APPURTENANCES INDICATED TO POC FOR NEW PIPING CONNECTIONS.
3. PROVIDE NEW PIPING BEFORE COMPLETING REMOVALS TO LIMIT BUILDING OUTAGES.
4. VERIFY EXISTING PIPING, BRANCHES, AND SIZES.

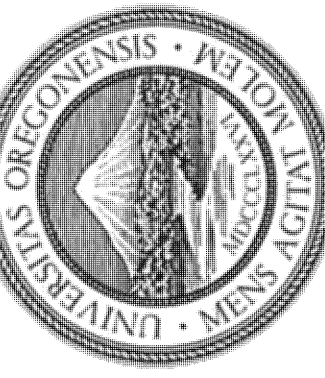
**SHEET NOTES**

- 1 REMOVE HOSE BIB AND CAP LINE
- 2 DISCONNECT AND ABANDON ELEC BOND
- 3 CAP ABANDONED PIPE AT TUNNEL WALL

REVISION	BY

**WOOD HARBINGER**  
Mechanical and Electrical Engineers  
Bellevue, WA

**UNIVERSITY OF OREGON**



REGISTERED PROFESSIONAL ENGINEER  
CARL E. LARSON  
5/8/13  
EXPIRES: 12-31-2014

**ISSUED FOR CONSTRUCTION - MAY 8, 2013**

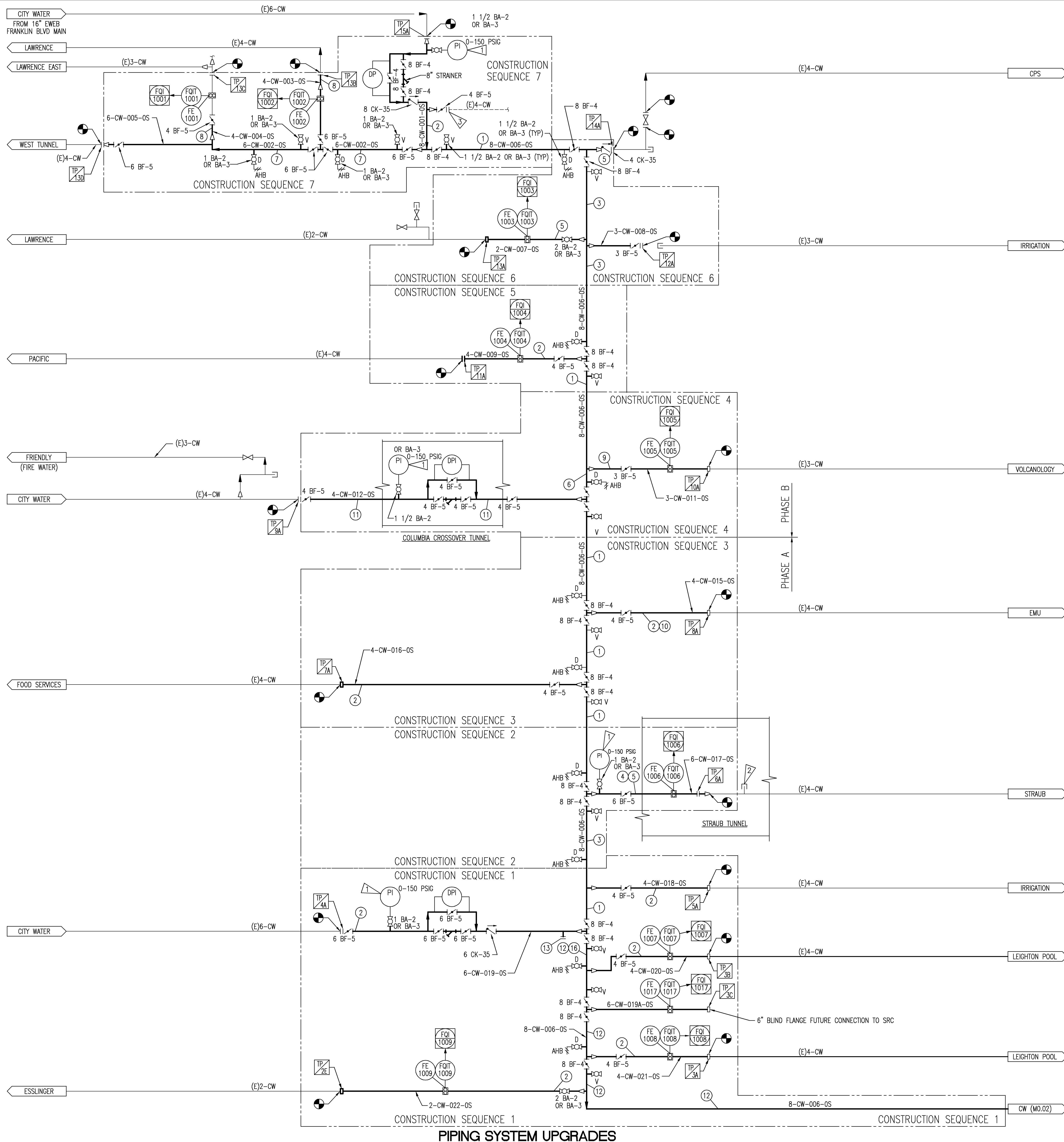
UNIVERSITY OF OREGON  
CAMPUS CENTRAL TUNNEL WATER LINE REPAIR  
EUGENE, OR 97403-1217

SHEET TITLE  
CAMPUS CENTRAL TUNNEL WATER LINE REPAIR  
PIPING AND INSTRUMENTATION DIAGRAM  
CENTRAL WATER LINE REMOVALS

DATE	5/8/13
SCALE	AS SHOWN
ENGR	SAG
DRWN	THN
CHKD	SAG
APPR	WHS
JOB	08100.09

**MR0.02**  
SHEET OF





**GENERAL NOTES**

- SEE M0.01 FOR SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES
- COORDINATE CONTRACTOR STAGING AREAS WITH OWNER AUTHORIZED REPRESENTATIVE.

**SHEET NOTES**

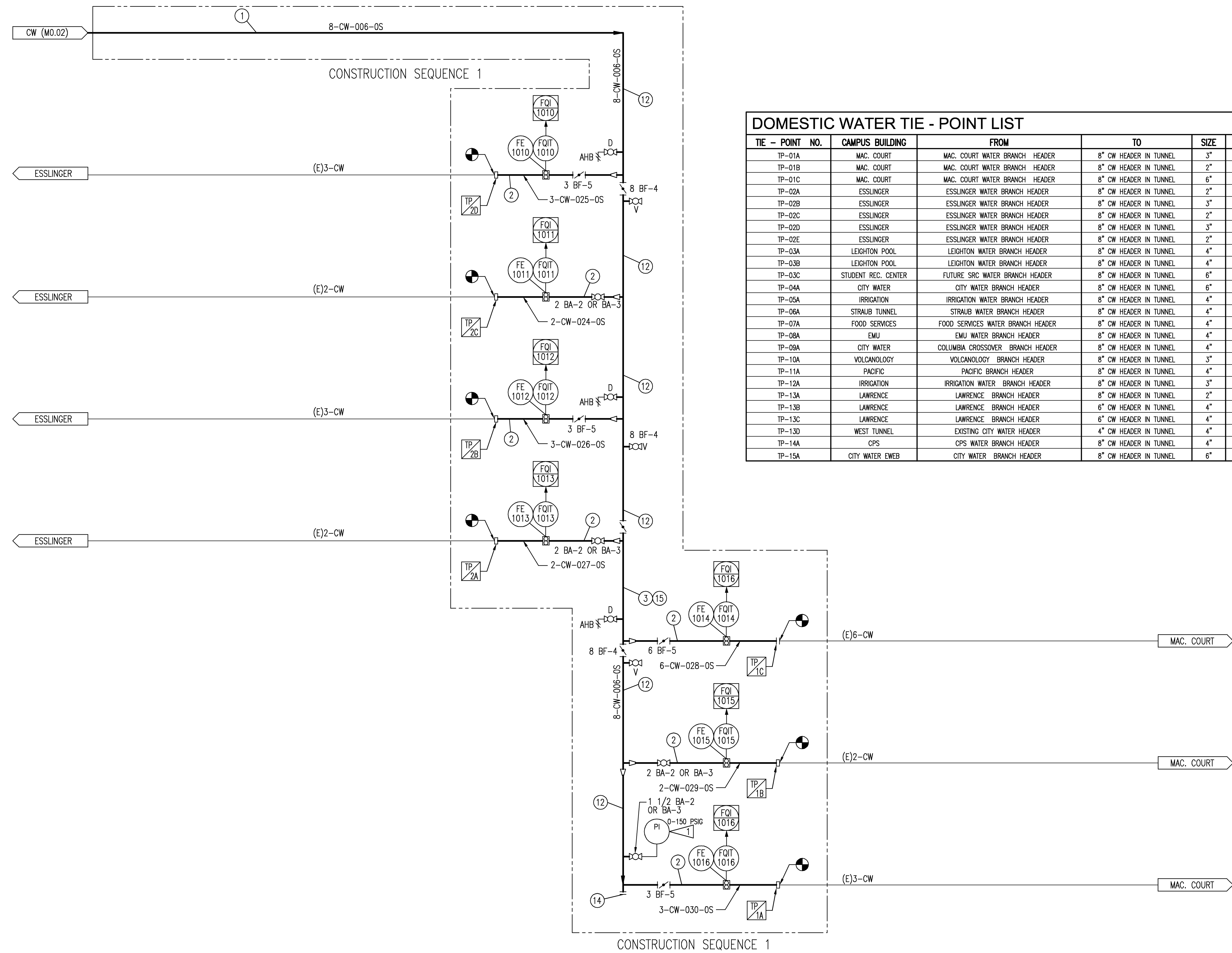
- PROVIDE PRESSURE INDICATOR WITH RANGE INDICATED. PROVIDE INSTRUMENT VALVE BETWEEN PROCESS VALVE INDICATED AND DEVICE.
- REMOVE HOSE BIBB AND CAP.
- CONNECT EXISTING 4\"/>

**CONSTRUCTION SEQUENCE NOTES**

- INSTALL NEW 8\"/>
- REMOVE EXISTING BUILDING TIE-IN, PROVIDE NEW BUILDING CONNECTION TO NEW 8\"/>
- REMOVE EXISTING 6\"/>
- REMOVE EXISTING 6\"/>
- PROVIDE TEMPORARY TIE-IN DURING REMOVE AS REQUIRED, TO MAINTAIN WATER TO BUILDING.
- REMOVE EXISTING 3\"/>
- INSTALL NEW 6\"/>
- REMOVE EXISTING BUILDING TIE-IN, PROVIDE NEW BUILDING CONNECTION TO NEW 6\"/>
- PROVIDE TEMPORARY TIE-IN CONNECTION TO EXISTING 6\"/>
- REMOVE LOWER LADDER STEPS TO INSTALL NEW 8\"/>
- REMOVE EXISTING 3\"/>
- INSTALL NEW 8\"/>
- PROVIDE 6\"/>
- NOT USED ON THIS DRAWING.
- NOT USED ON THIS DRAWING.
- REMOVE 4\"/>

REVISION	BY
<b>ISSUED FOR CONSTRUCTION - MAY 8, 2013</b>	
UNIVERSITY OF OREGON CAMPUS CENTRAL TUNNEL WATER LINE REPAIR 1217 UNIVERSITY OF OREGON EUGENE, OR 97403-1217	SHEET TITLE CAMPUS CENTRAL TUNNEL WATER LINE REPAIR PIPING AND INSTRUMENTATION DIAGRAM
DATE 5/8/13	SCALE AS SHOWN
ENGR SAG	DRWN THN
CHKD SAG	APPR WHS
JOB 08100.09	
<b>M0.02</b>	
SHEET	OF





TIE - POINT NO.	CAMPUS BUILDING	FROM	TO	SIZE	CONNECT.	PHASE AND CONSTRUCTION SEQUENCE
TP-01A	MAC COURT	MAC COURT WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	3"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-01B	MAC COURT	MAC COURT WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	2"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-01C	MAC COURT	MAC COURT WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	6"	FLANGE	PHASE A - CONSTRUCTION SEQUENCE 1
TP-02A	ESSLINGER	ESSLINGER WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	2"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-02B	ESSLINGER	ESSLINGER WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	3"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-02C	ESSLINGER	ESSLINGER WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	2"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-02D	ESSLINGER	ESSLINGER WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	3"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-02E	ESSLINGER	ESSLINGER WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	2"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-03A	LEIGHTON POOL	LEIGHTON WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	4"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-03B	LEIGHTON POOL	LEIGHTON WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	4"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-03C	STUDENT REC. CENTER	FUTURE SRC WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	6"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-04A	CITY WATER	CITY WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	6"	FLANGE	PHASE A - CONSTRUCTION SEQUENCE 1
TP-05A	IRRIGATION	IRRIGATION WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	4"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 1
TP-06A	STRAUB TUNNEL	STRAUB WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	4"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 2
TP-07A	FOOD SERVICES	FOOD SERVICES WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	4"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 3
TP-08A	EMU	EMU WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	4"	COUPLING	PHASE A - CONSTRUCTION SEQUENCE 3
TP-09A	CITY WATER	COLUMBIA CROSSOVER BRANCH HEADER	8" CW HEADER IN TUNNEL	4"	FLANGE	PHASE B - CONSTRUCTION SEQUENCE 4
TP-10A	VOLCANOLOGY	VOLCANOLOGY BRANCH HEADER	8" CW HEADER IN TUNNEL	3"	COUPLING	PHASE B - CONSTRUCTION SEQUENCE 4
TP-11A	PACIFIC	PACIFIC BRANCH HEADER	8" CW HEADER IN TUNNEL	4"	COUPLING	PHASE B - CONSTRUCTION SEQUENCE 5
TP-12A	IRRIGATION	IRRIGATION WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	3"	PIPE CAP	PHASE B - CONSTRUCTION SEQUENCE 6
TP-13A	LAWRENCE	LAWRENCE BRANCH HEADER	8" CW HEADER IN TUNNEL	2"	COUPLING	PHASE B - CONSTRUCTION SEQUENCE 6
TP-13B	LAWRENCE	LAWRENCE BRANCH HEADER	6" CW HEADER IN TUNNEL	4"	FLANGE	PHASE B - CONSTRUCTION SEQUENCE 7
TP-13C	LAWRENCE	LAWRENCE BRANCH HEADER	6" CW HEADER IN TUNNEL	4"	COUPLING	PHASE B - CONSTRUCTION SEQUENCE 7
TP-13D	WEST TUNNEL	EXISTING CITY WATER HEADER	4" CW HEADER IN TUNNEL	4"	COUPLING	PHASE B - CONSTRUCTION SEQUENCE 7
TP-14A	CPS	CPS WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	4"	FLANGE	PHASE B - CONSTRUCTION SEQUENCE 8
TP-15A	CITY WATER EWEB	CITY WATER BRANCH HEADER	8" CW HEADER IN TUNNEL	6"	FLANGE	PHASE B - CONSTRUCTION SEQUENCE 7

**GENERAL NOTES**

- SEE M0.01 FOR SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES.
- COORDINATE CONTRACTOR STAGING AREAS WITH OWNER AUTHORIZED REPRESENTATIVE.

**SHEET NOTES**

▶ PROVIDE PRESSURE INDICATOR WITH RANGE INDICATED. PROVIDE INSTRUMENT VALVE BETWEEN PROCESS VALVE INDICATED AND DEVICE.

- CONSTRUCTION SEQUENCE NOTES**
- INSTALL NEW 8" PIPE ABOVE EXISTING 6" CW PIPING.
  - REMOVE EXISTING BUILDING TIE-IN, PROVIDE NEW BUILDING CONNECTION TO NEW 8" PIPE. (SEE DETAILS ON M3.01 AND M3.02 DRAWINGS)
  - REMOVE EXISTING 6" CW HEADER AND PROVIDE NEW 8" PIPING.
  - NOT USED ON THIS DRAWING.
  - NOT USED ON THIS DRAWING.
  - NOT USED ON THIS DRAWING.
  - NOT USED ON THIS DRAWING.
  - NOT USED ON THIS DRAWING.
  - NOT USED ON THIS DRAWING.
  - NOT USED ON THIS DRAWING.
  - NOT USED ON THIS DRAWING.
  - INSTALL NEW 8" PIPE ABOVE OR ADJACENT TO THE EXISTING 6" CW PIPE. PROVIDE TEE'S AND VALVING FOR NEW BRANCH PIPING OFF OF THE NEW 8" HEADER PER THE DETAILS ON DRAWINGS M3.01 AND M3.02. INSTALL AS MUCH BRANCH PIPING AS POSSIBLE TO MAKE THE TRANSITION FROM OLD CONNECTION TO NEW AS SIMPLE AS POSSIBLE TO MINIMIZE DOWNTIME.
  - NOT USED ON THIS DRAWING.
  - DURING REMOVAL OF ADJACENT PIPE, USE THIS LOCATION AS A POINT FOR TEMPORARY PIPING CONNECTION.
  - DURING REMOVAL OF PIPING FROM STAIRCASE SOUTH TO 6" BRANCH USE THE NEW 8" HEADER TO PROVIDE A TEMPORARY TEE TO CONNECT WATER TO THE THREE BRANCHES TO MARTHUR COURT.
  - NOT USED ON THIS DRAWING.

CONTROL POINT MATRIX - DOMESTIC WATER SUPPLY - WEST TUNNEL											
DESCRIPTION	CONTROL SYMBOL w/ DDC INTERFACE	DIGITAL INPUT	ANALOG INPUT	DIGITAL OUTPUT	ANALOG OUTPUT	PULSED INPUT	COMM INTERFACE - CARRIER	COMM INTERFACE - SIEMENS	COMM INTERFACE - ASCO	TOTALIZATION CAPABLE	REMARKS
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1001 - LAWRENCE EAST	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1002 - LAWRENCE	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1003 - LAWRENCE	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1004 - PACIFIC	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1005 - VOLCANOLOGY	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1006 - STRAUB	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1007 - LEIGHTON POOL	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1008 - LEIGHTON POOL	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1009 - ESSLINGER	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1010 - ESSLINGER	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1011 - ESSLINGER	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1012 - ESSLINGER	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1013 - ESSLINGER	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1014 - MAC COURT	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1015 - MAC COURT	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1016 - MAC COURT	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM
FLOW, WATER, BUILDING WATER CONSUMPTION, POINT #1017 - STUDENT REC. CENTER	FE/FOIT/FOI				X					X	PROVIDE DDC MONITORING. PROVIDE REMOTE REGISTER IN BUILDING MECHANICAL ROOM

**REMARKS**

- CONNECT METER OUTPUT TO NEAREST DDC PANEL.
- CONNECT DDC PANEL TO REMOTE INDICATOR IN BUILDING MECHANICAL ROOM. COORDINATE EXACT LOCATION OF REMOTE INDICATOR WITH OWNERS REPRESENTATIVE PRIOR TO INSTALLATION AND ROUGH IN.
- AT CONTRACTOR'S OPTION, WHERE TOTAL WIRE LENGTH IS LESS THAN 300 FEET, DIRECT CONNECTION FROM METER TO REMOTE INDICATOR FURNISHED WITH METER IS ACCEPTABLE.
- REMOTE INDICATOR READOUT SHALL BE IN GALLONS.

REVISION BY

**WOOD HARBINGER**  
Mechanical and Electrical Engineers  
Bellevue, WA

**UNIVERSITY OF OREGON**

ISSUED FOR CONSTRUCTION - MAY 8, 2013

REGISTERED PROFESSIONAL ENGINEER  
CARL E. LARSON  
EXPIRES: 12-31-2014

UNIVERSITY OF OREGON  
CAMPUS CENTRAL TUNNEL WATER LINE REPAIR  
1217 UNIVERSITY OF OREGON  
EUGENE, OR 97403-1217

SHEET TITLE  
CAMPUS CENTRAL TUNNEL WATER LINE REPAIR  
PIPING AND INSTRUMENTATION DIAGRAM  
CENTRAL WATER LINE

DATE: 5/8/13  
SCALE: AS SHOWN  
ENGR: SAG  
DRWN: THN  
CHKD: SAG  
APPR: WHS  
JOB: 08100.09

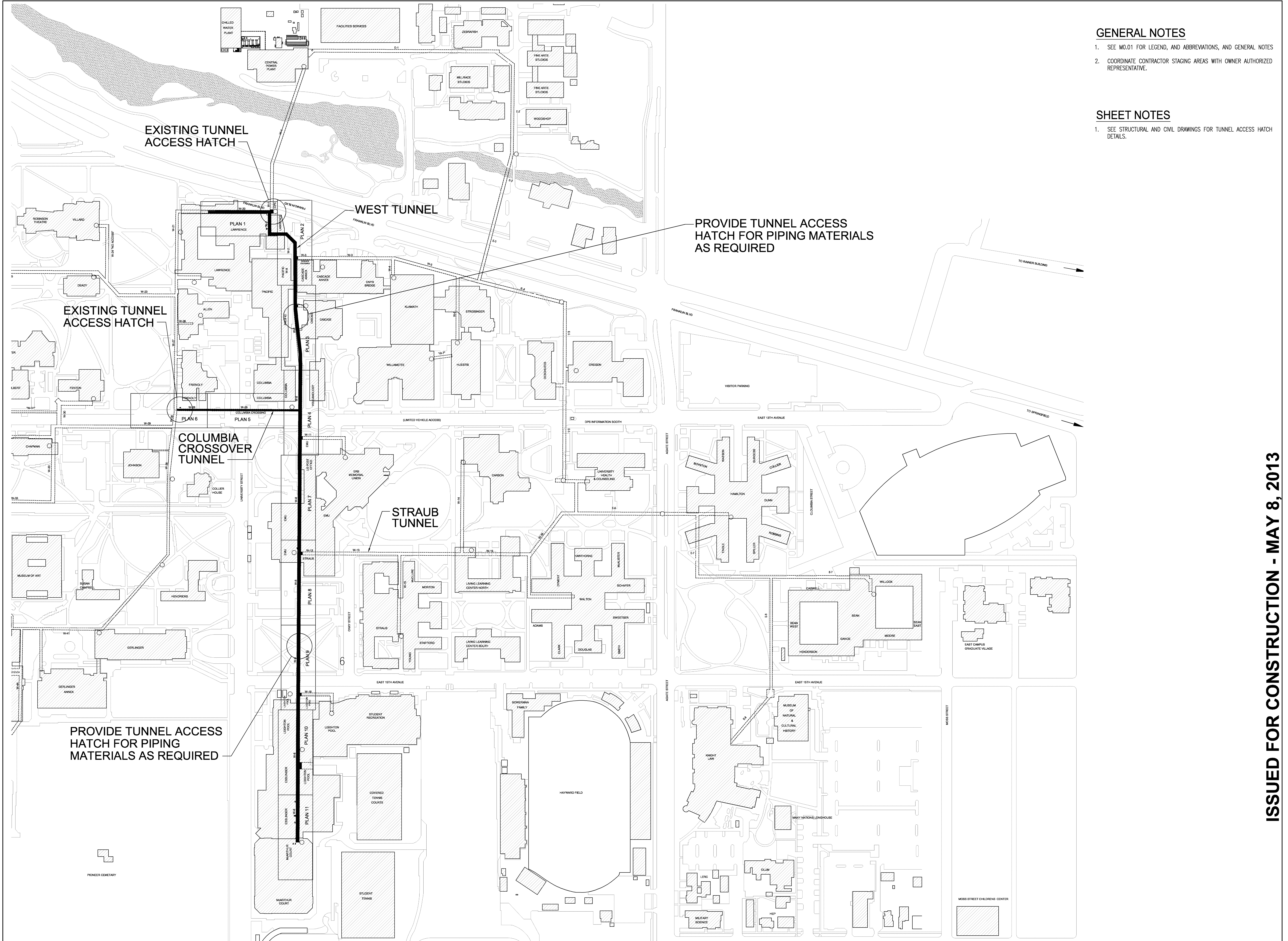
**M0.03**  
SHEET OF

**PIPING SYSTEM UPGRADES**









**GENERAL NOTES**

1. SEE M0.01 FOR LEGEND, AND ABBREVIATIONS, AND GENERAL NOTES
2. COORDINATE CONTRACTOR STAGING AREAS WITH OWNER AUTHORIZED REPRESENTATIVE.

**SHEET NOTES**

1. SEE STRUCTURAL AND CIVIL DRAWINGS FOR TUNNEL ACCESS HATCH DETAILS.

PROVIDE TUNNEL ACCESS HATCH FOR PIPING MATERIALS AS REQUIRED

EXISTING TUNNEL ACCESS HATCH

EXISTING TUNNEL ACCESS HATCH

PROVIDE TUNNEL ACCESS HATCH FOR PIPING MATERIALS AS REQUIRED

**CAMPUS CENTRAL WATER LINE REPAIR - TUNNEL SITE PLAN**  
SCALE: 1"=100'

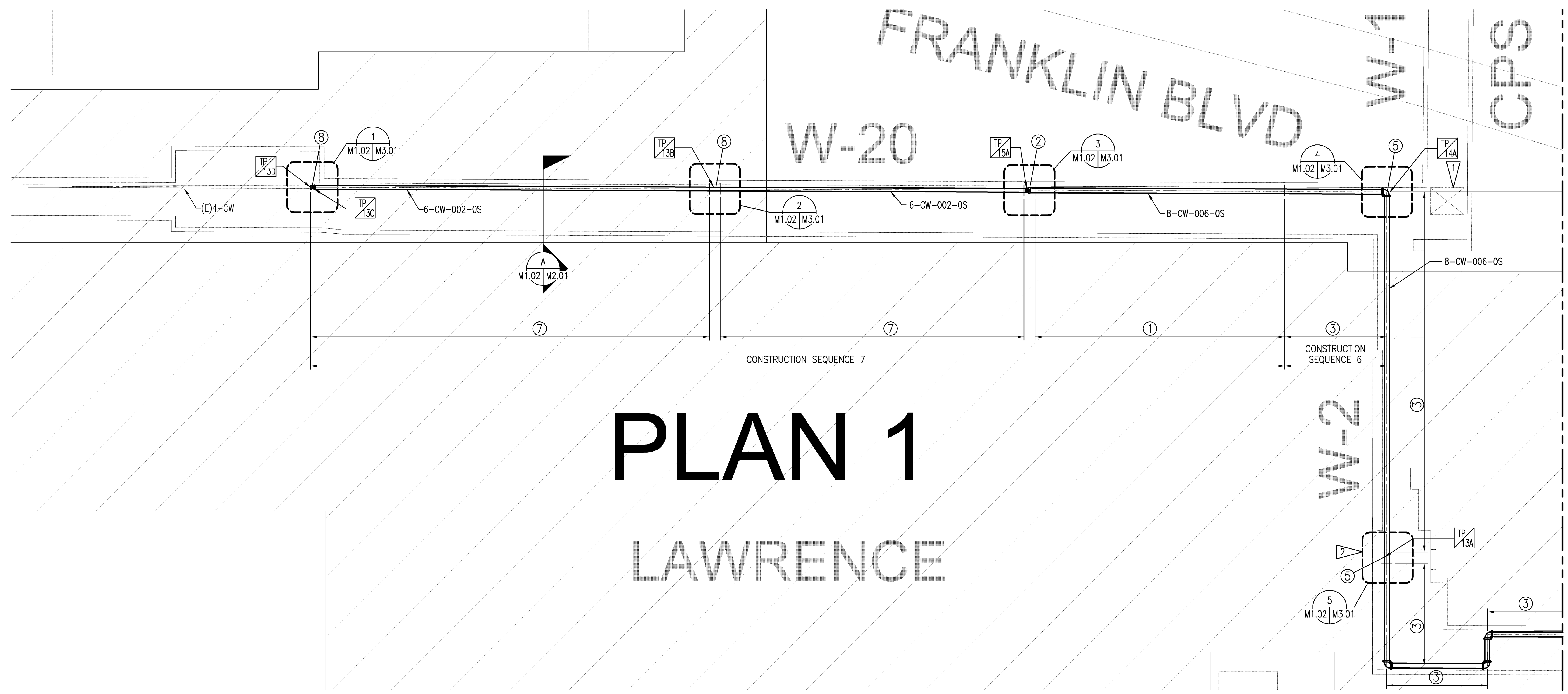
M1.01 M1.01

0 50 100 200 300  
1"=100'-0" feet

REVISION	BY
<b>UNIVERSITY OF OREGON</b>	
<b>ISSUED FOR CONSTRUCTION - MAY 8, 2013</b>	
UNIVERSITY OF OREGON CAMPUS CENTRAL TUNNEL WATER LINE REPAIR 1217 UNIVERSITY OF OREGON EUGENE, OR 97403-1217	
SHEET TITLE <b>CAMPUS CENTRAL TUNNEL WATER LINE REPAIR TUNNEL SITE PLAN</b>	
DATE	5/8/13
SCALE	AS SHOWN
ENGR	SAG
DRWN	THN
CHKD	SAG
APPR	WHS
JOB	08100.09
<b>M1.01</b>	
SHEET	OF



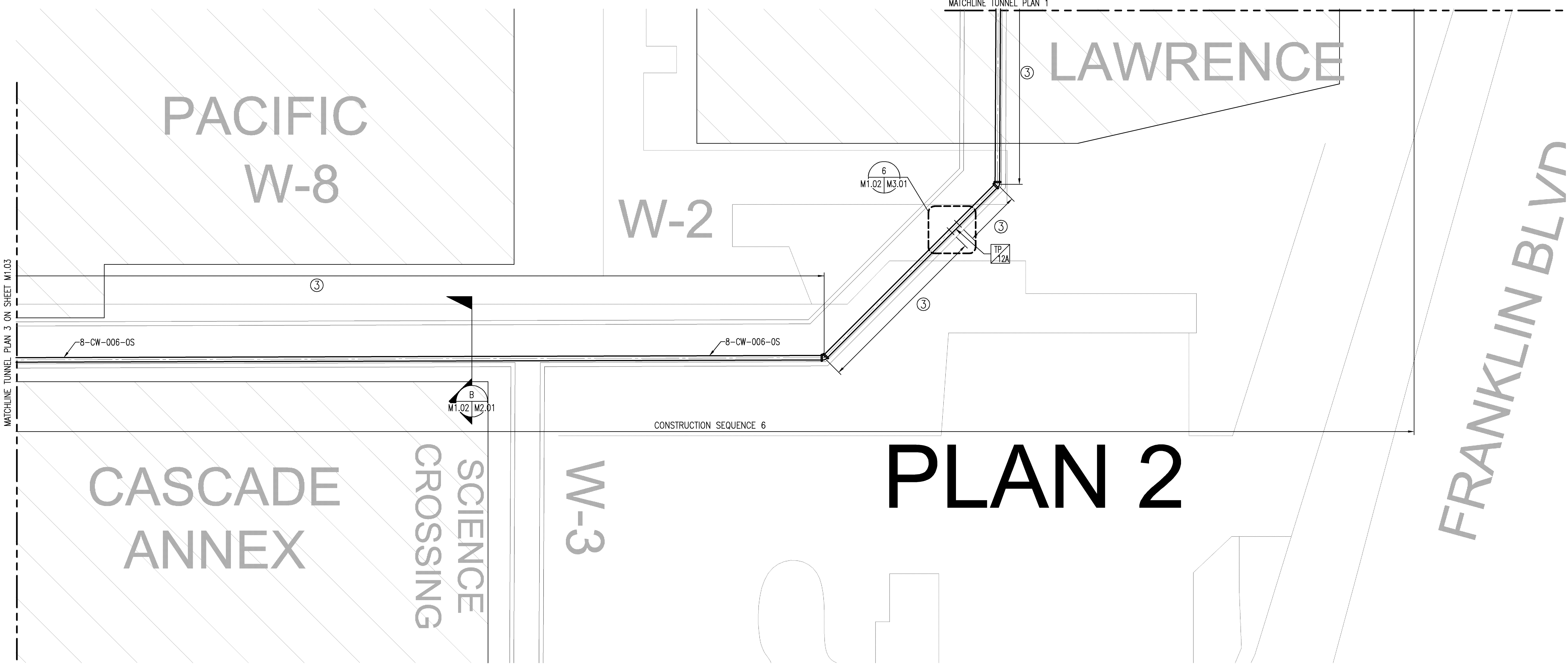
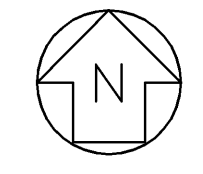
DRAWN BY: KHON  
 CHECKED BY: KHON  
 DATE: 04/26/10 at 08:14 am  
 REVISION: 05/09/10 at 09:38 am  
 FILE NAME: g:\2008\08100\03\dwg\m\ccwr-m1.02.dwg  
 ATTACHED SHEETS: NONE  
 ATTACHED SHEETS: CAMP-CITY-WTR, TB-W130-42



# PLAN 1

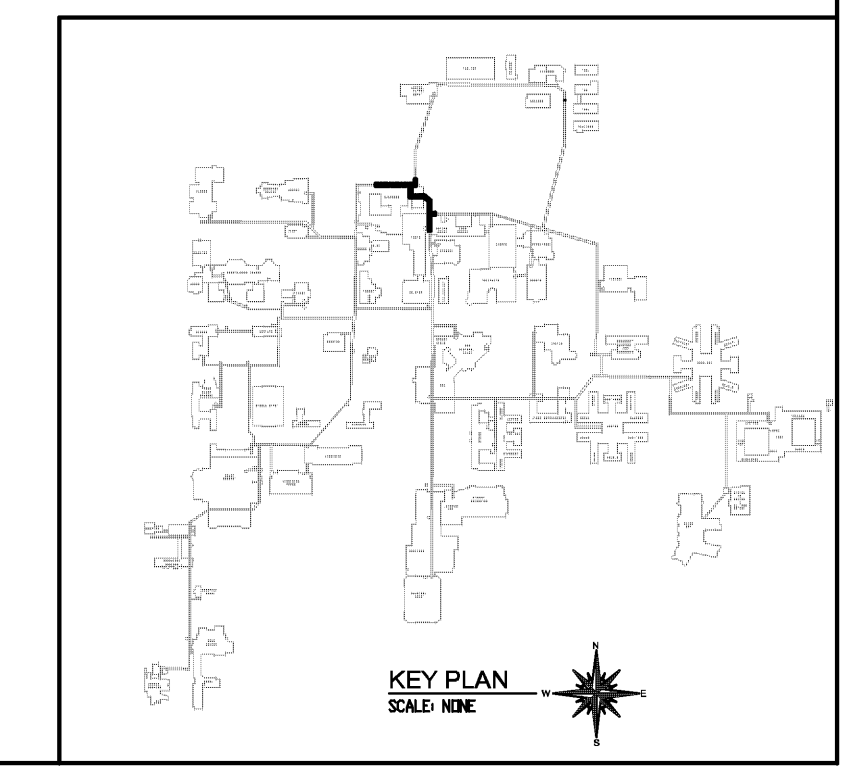
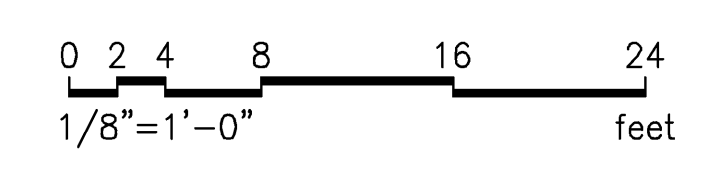
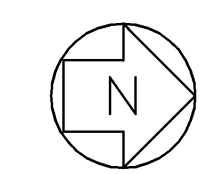
## LAWRENCE

**WEST TUNNEL PLAN 1**  
 SCALE: 1/8"=1'-0"




# PLAN 2



**WEST TUNNEL PLAN 2**  
 SCALE: 1/8"=1'-0"



### GENERAL NOTES

- SEE M0.01 FOR LEGEND, AND ABBREVIATIONS, AND GENERAL NOTES
- PIPE ROUTING SHOWN IS ABOVE FLOOR AT WALL. SEE  FOR TYPICAL WALL SUPPORT DETAIL.
- CONTRACTOR MAY ROUTE PIPING ELSEWHERE IN TUNNEL PROVIDED IT DOES NOT OBSTRUCT WALK AISLE OR ACCESS TO OTHER EQUIPMENT.

### SHEET NOTES

-  EXISTING TUNNEL ACCESS HATCH FROM DRIVEWAY ABOVE
-  POC: CONNECT TO EXISTING 3-CW ABOVE 8-CW


### CONSTRUCTION SEQUENCE NOTES

- INSTALL NEW 8" PIPE ABOVE EXISTING 6" CW PIPING.
- REMOVE EXISTING BUILDING TIE-IN, PROVIDE NEW BUILDING CONNECTION TO NEW 8" PIPE. (SEE DETAILS ON M3.01 AND M3.02 DRAWINGS)
- REMOVE EXISTING 6" CW HEADER AND PROVIDE NEW 8" PIPING.
- NOT USED ON THIS DRAWING.
- PROVIDE TEMPORARY TIE-IN DURING REMOVAL AS REQUIRED, TO MAINTAIN WATER TO BUILDING.
- NOT USED ON THIS DRAWING.
- INSTALL NEW 6" PIPE ABOVE EXISTING 6" CW PIPING.
- REMOVE EXISTING BUILDING TIE-IN, PROVIDE NEW BUILDING CONNECTION TO NEW 6" PIPE. (SEE DETAILS ON M3.01 DRAWINGS)
- NOT USED ON THIS DRAWING.
- NOT USED ON THIS DRAWING.
- NOT USED ON THIS DRAWING.
- NOT USED ON THIS DRAWING.
- NOT USED ON THIS DRAWING.
- NOT USED ON THIS DRAWING.
- NOT USED ON THIS DRAWING.
- NOT USED ON THIS DRAWING.

REVISION	BY

**WOOD HARBINGER**  
 Mechanical and Electrical Engineers  
 Bellevue, WA

**UNIVERSITY OF OREGON**

  
 REGISTERED PROFESSIONAL ENGINEER  
 CARL E. LARSON  
 5/8/13  
 EXPIRES: 12-31-2014

**ISSUED FOR CONSTRUCTION - MAY 8, 2013**

UNIVERSITY OF OREGON  
 CAMPUS CENTRAL TUNNEL WATER LINE REPAIR  
 1217 UNIVERSITY OF OREGON  
 EUGENE, OR 97403-1217

SHEET TITLE  
 CAMPUS CENTRAL TUNNEL WATER LINE REPAIR  
 PARTIAL TUNNEL PLANS  
 CENTRAL WATER LINE

DATE	5/8/13
SCALE	AS NOTED
ENGR	SAG
DRWN	THN
CHKD	SAG
APPR	WHS
JOB	08100.09

**M1.02**  
 SHEET OF

















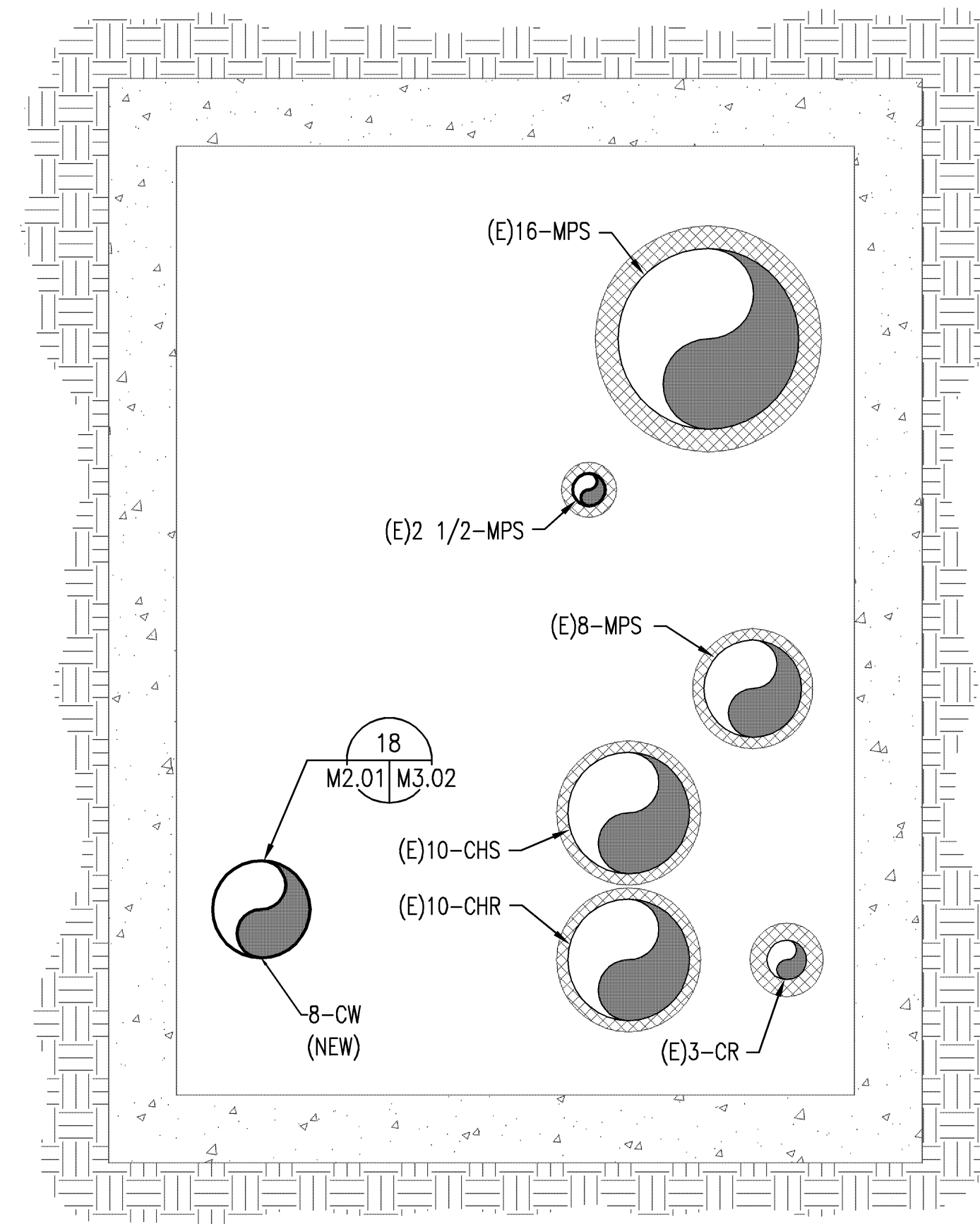
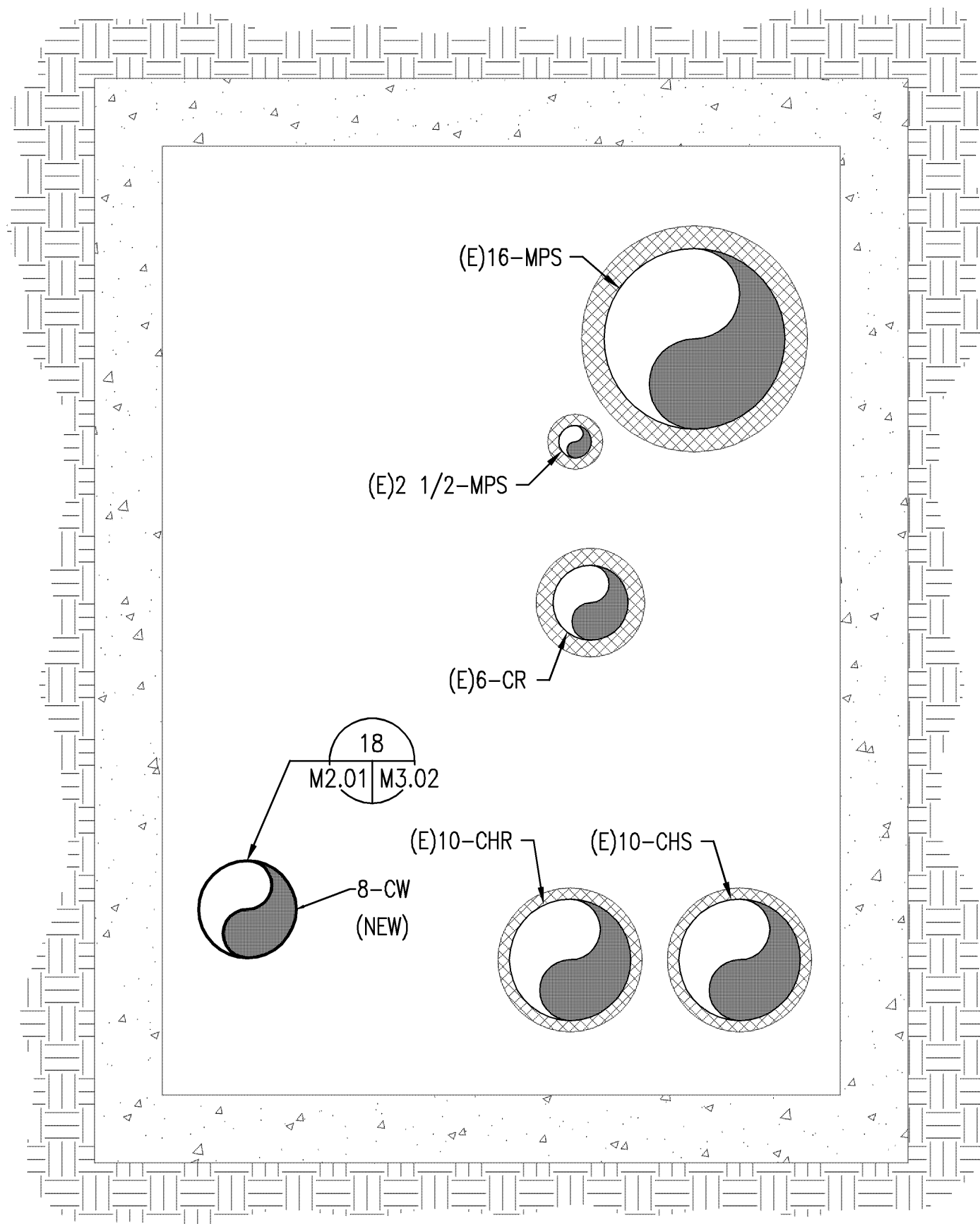
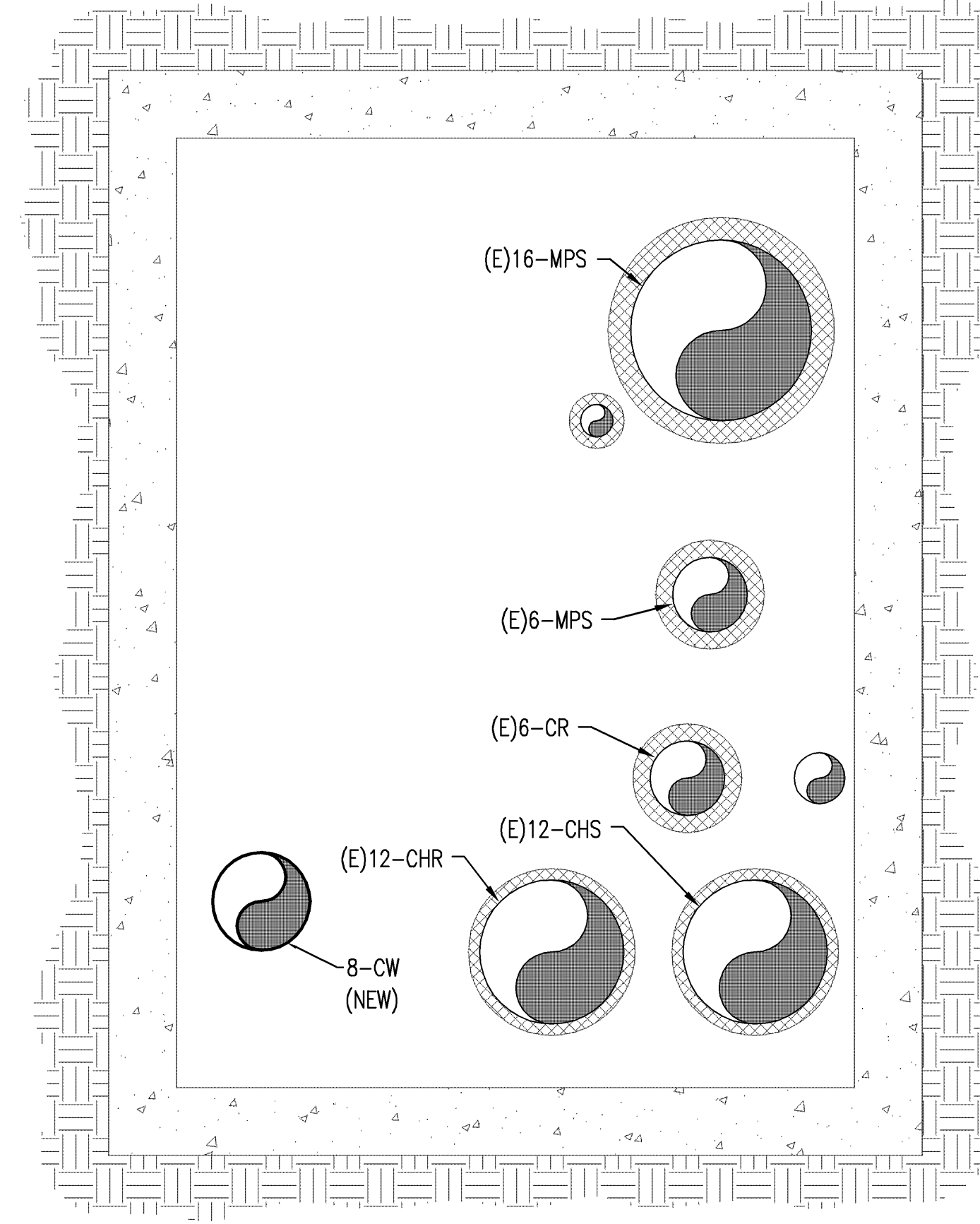
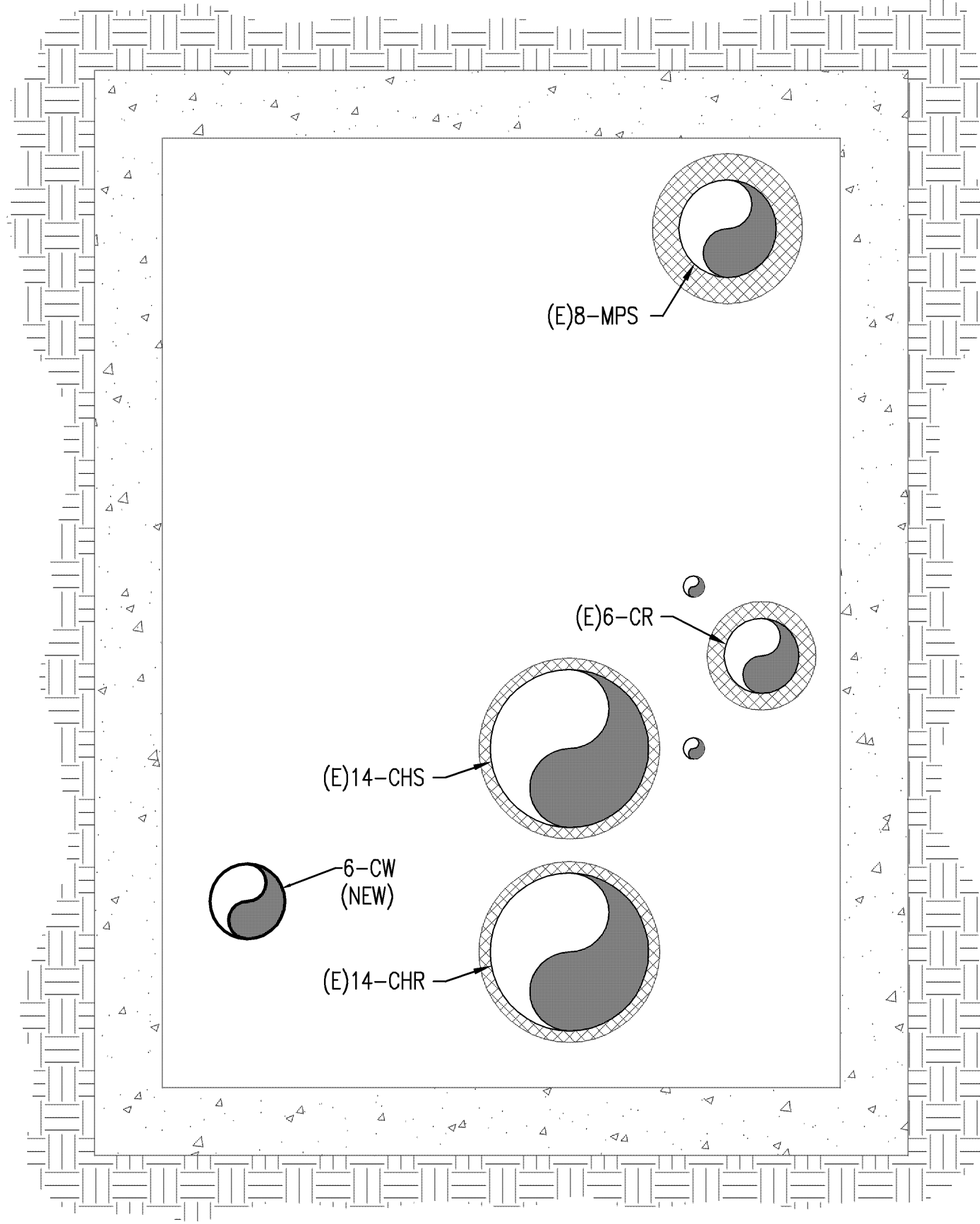






**GENERAL NOTES**

1. SEE M0.01 FOR LEGEND, AND ABBREVIATIONS, AND GENERAL NOTES



REVISION	BY
<p><b>ISSUED FOR CONSTRUCTION - MAY 8, 2013</b></p>	
<p>UNIVERSITY OF OREGON CAMPUS CENTRAL TUNNEL WATER LINE REPAIR EUGENE, OR 97403-1217</p>	
<p>SHEET TITLE CAMPUS CENTRAL TUNNEL WATER LINE REPAIR TUNNEL SECTIONS</p>	
DATE	5/8/13
SCALE	AS NOTED
ENGR	SAG
DRWN	THN
CHKD	SAG
APPR	WHS
JOB	08100.09
<p><b>M2.01</b></p>	
SHEET	OF

PLotted by: KHON  
 PLOTDATE: 04/26/10 08:34 am  
 created: 05/09/10 09:17 am  
 accessed by: KHON  
 FILE NAME: g:\2008\08100\03\dwg\m\ccwr-m2.01.dwg  
 attached sheets: NONE  
 attached sheets: NONE







