Jefferson-Olson Mechanical Plant

Independent School District #271

Bloomington, Minnesota

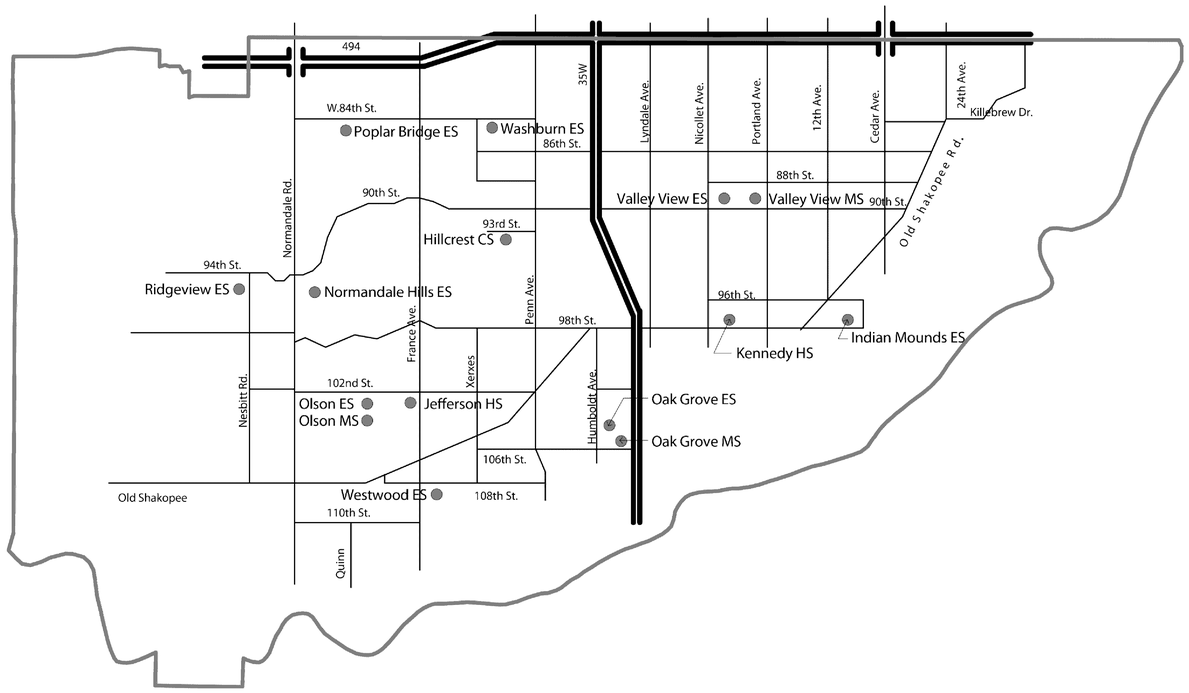
MN

Must meet 2020 MN State Building Code

Must meet 2020 MN Accessibility Code.

Provide a detailed code analysis with the plans.

SAC review by MET council will be required.



CIVIL

C0.000	CIVIL TITLE SHEET

ARCHITECTURAL

A0.101	CODE PLAN
A2.001	MAIN LEVEL FLOOR PLAN, ROOF PLAN
A4.201	DETAILS - VERTICAL CIRCULATION
A5.101	EXTERIOR ELEVATIONS
A5.202	WALL SECTIONS
A5.501	DETAILS - EXTERIOR
A5.502	DETAILS - EXTERIOR

STRUCTURAL

S0.000	STRUCTURAL TITLE SHEET
S2.001	FOUNDATION AND ROOF FRAMING PLANS
S5.201	SECTIONS AND DETAILS
S6.201	SECTIONS AND DETAILS

MECHANICAL

M0.000	MECHANICAL TITLE SHEET
M1.00	CHILLER PLANT UNDERGROUND AND MAIN LEVEL PLAN
M1.01	CHILLER PLANT ROOF PLAN
M1.03	JEFFERSON BOILER PLAN

ELECTRICAL

E0.000	ELECTRICAL TITLE SHEET

CD ESTIMATE SET
NOT FOR CONSTRUCTION

Set No:_____
Comm No:202115

Jefferson-Olson Mechanical Plant

4551 West 102nd Street
Bloomington, MN 55437

Independent School District #271
1350 West 106th Street
Bloomington, MN 55431

WOLD ARCHITECTS AND ENGINEERS
332 Minnesota Street, Suite W2000
Saint Paul, MN 55101
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KRAUS-ANDERSON

BKBM ENGINEERS

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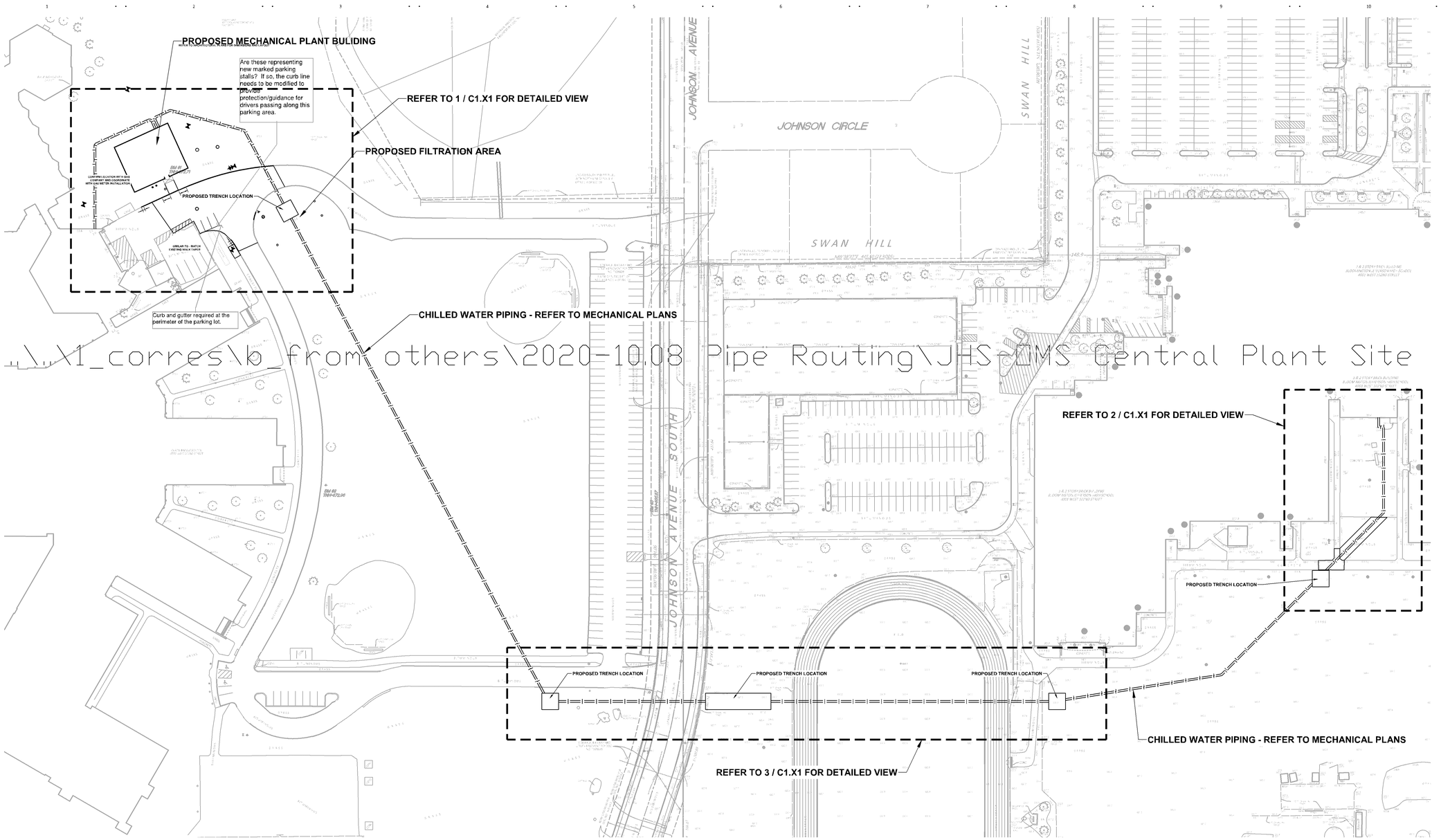

\\...\1_corres\b_from_others\2020-10.08 Pipe Routing\JHS_DMS Central Plant Site

MN

NOTES:

1. REFER TO SHEET C1.31, GRADING AND DRAINAGE PLAN, FOR GENERAL NOTES.
2. REFER TO MECHANICAL PLANS FOR CHILLED WATER PIPING INFORMATION.

Maintain emergency vehicle access and circulation throughout the property.

Sprinkler system requirements will be dependent on the building code occupancy classification and based on the building not physically being attached to existing buildings.

C

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DAVID A. REY
Registration Number 40180 Date 03/31/2021

Revisions		
Description	Date	Num

Comm: 202115
Date: 03/19/2021
Drawn: MET
Chock: DAR

North

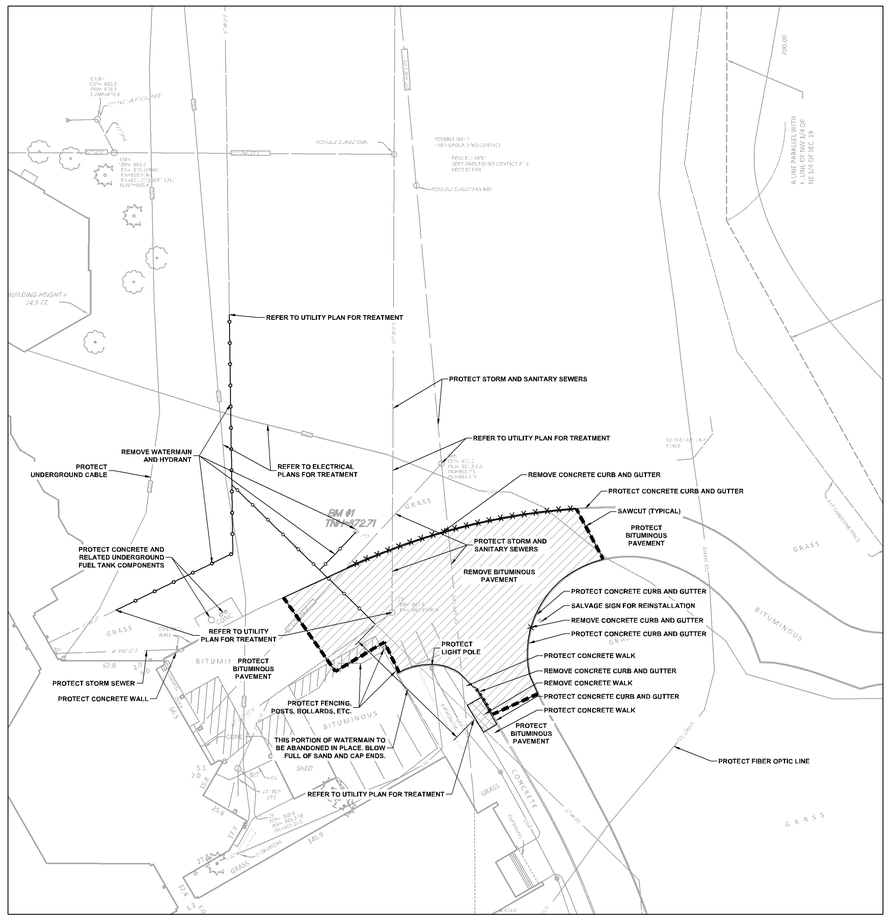
OVERALLL SITE PLAN

Scale: 1" = 50'

0 25 50

C1.00

MN



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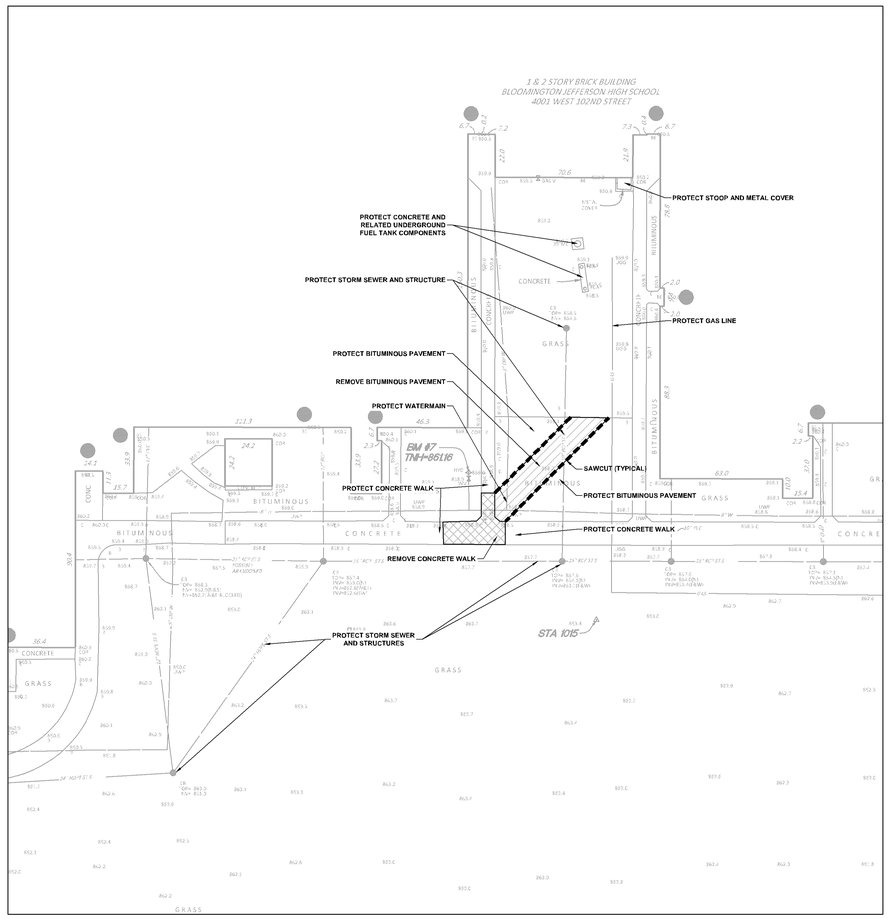

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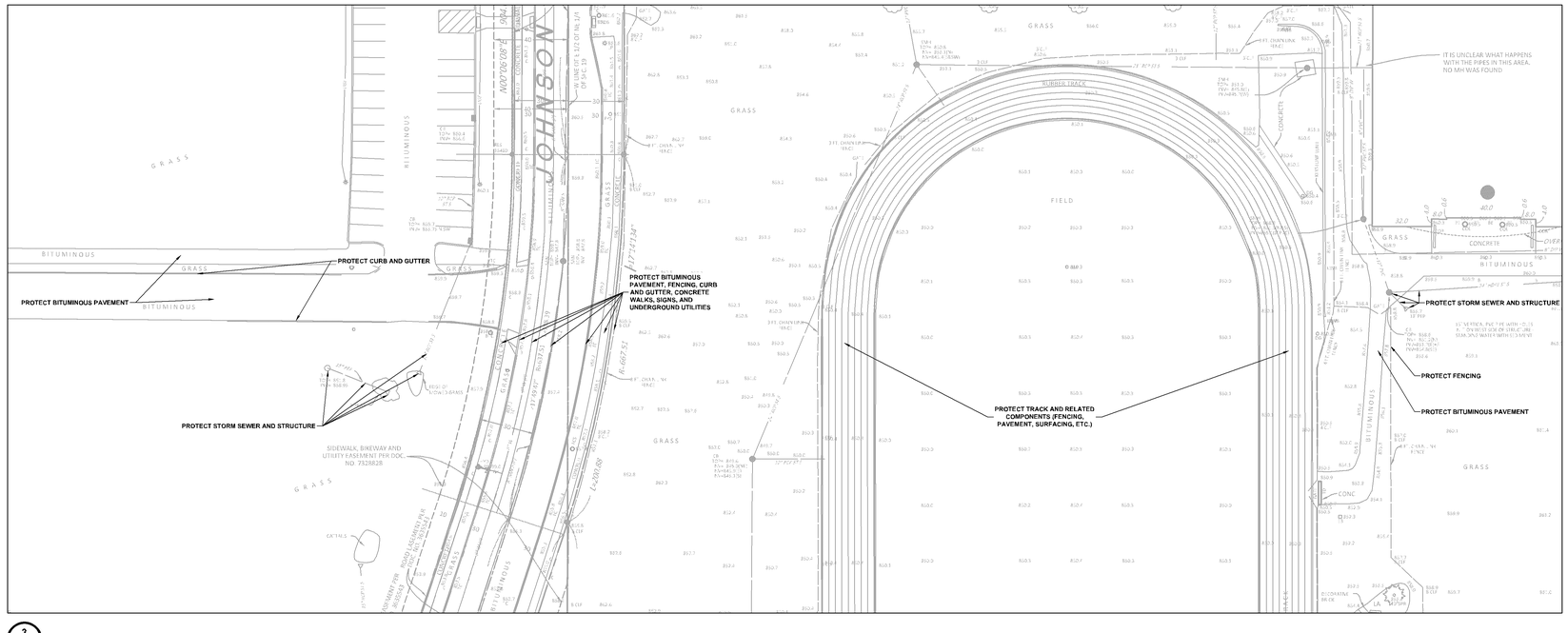

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C1.11

NOTES:

1. REFER TO SHEET C1.31, GRADING AND DRAINAGE PLAN, FOR GENERAL NOTES.
2. MINIMIZE DISTURBANCE TO SITE AND PROTECT EXISTING VEGETATION AND SITE FEATURES (CURBS, WALKS, PAVEMENTS, OVERHEAD AND UNDERGROUND UTILITIES, SIGNAGE, FENCING, ROADWAYS, ETC.) WHICH ARE TO REMAIN.
3. REPAIR OR REPLACE EXISTING PROPERTY AND SITE FEATURES, INCLUDING GRASS AND VEGETATION, WHICH IS TO REMAIN THAT IS DAMAGED BY THE WORK, TO OWNER'S SATISFACTION AND AT NO ADDITIONAL COST TO THE OWNER.
4. VISIT THE SITE PRIOR TO BIDDING; BE FAMILIAR WITH ACTUAL CONDITIONS IN THE FIELD. EXTRA COMPENSATION WILL NOT BE ALLOWED FOR CONDITIONS WHICH COULD HAVE BEEN DETERMINED OR ANTICIPATED BY EXAMINATION OF THE SITE, THE CONTRACT DRAWINGS AND THE INFORMATION AVAILABLE PERTAINING TO EXISTING SOILS, UTILITIES AND OTHER SITE CHARACTERISTICS.
5. THE CONTRACTOR SHALL HIRE THE SERVICES OF A UTILITY LOCATOR COMPANY TO LOCATE ALL PRIVATELY OWNED UTILITIES THAT MAY BE DISTURBED BY CONSTRUCTION OPERATIONS.

LEGEND

- CONCRETE PAVEMENT REMOVALS
- CONCRETE CURB AND GUTTER REMOVALS
- BITUMINOUS PAVEMENT REMOVALS
- SAWCUT
- UTILITY REMOVALS
- PROPERTY LINE

0 15 30

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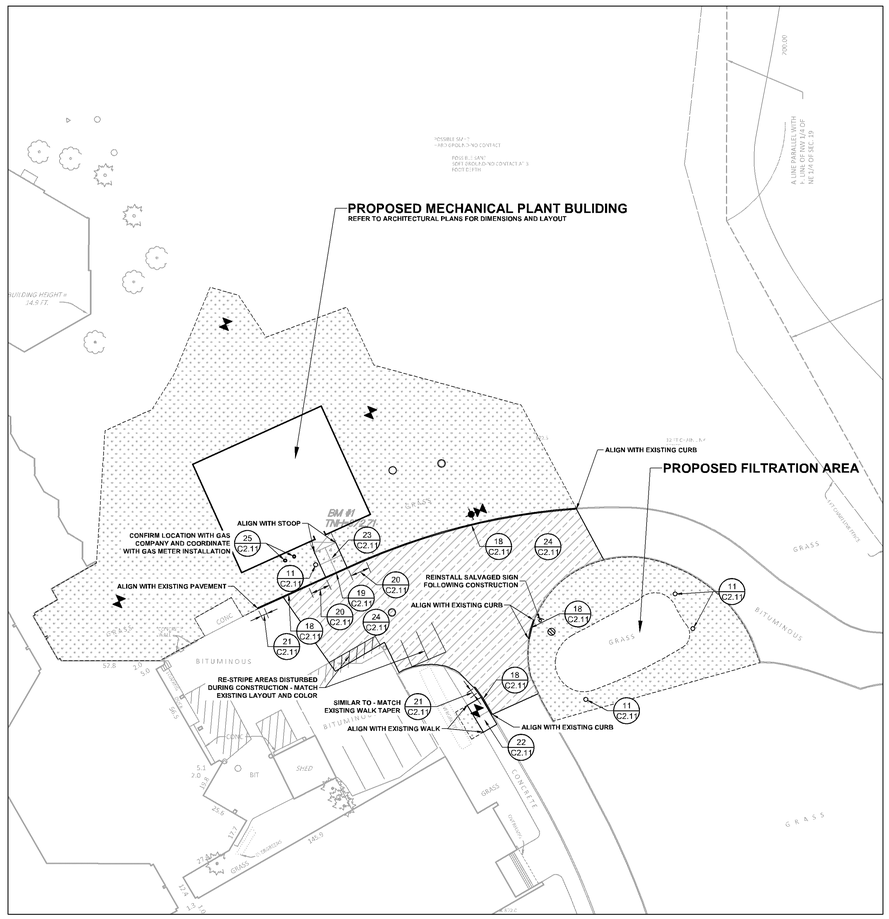
North

REMOVALS PLAN

Scale: 1" = 30'

C1.11



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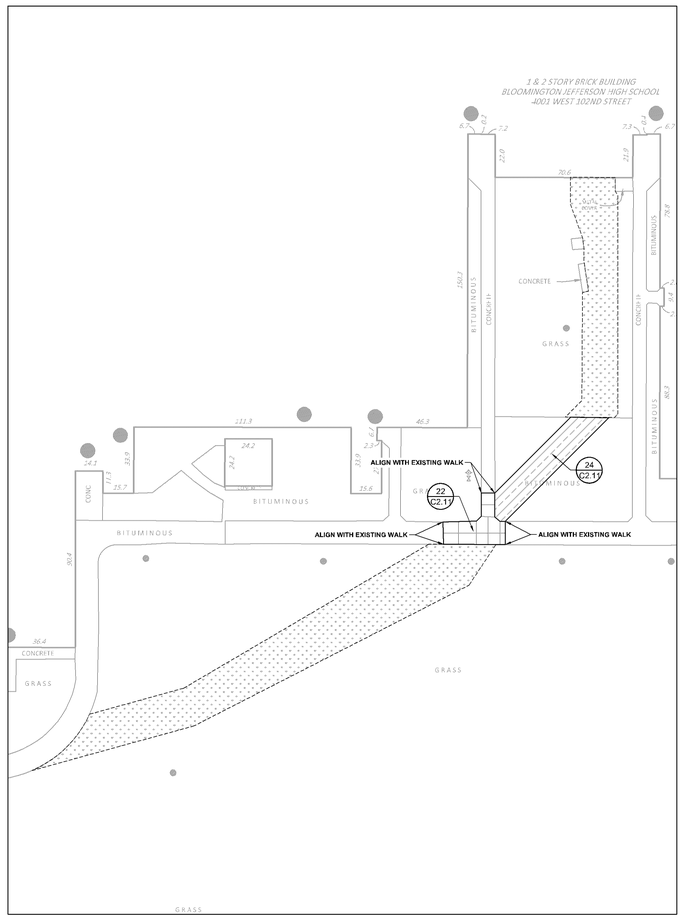

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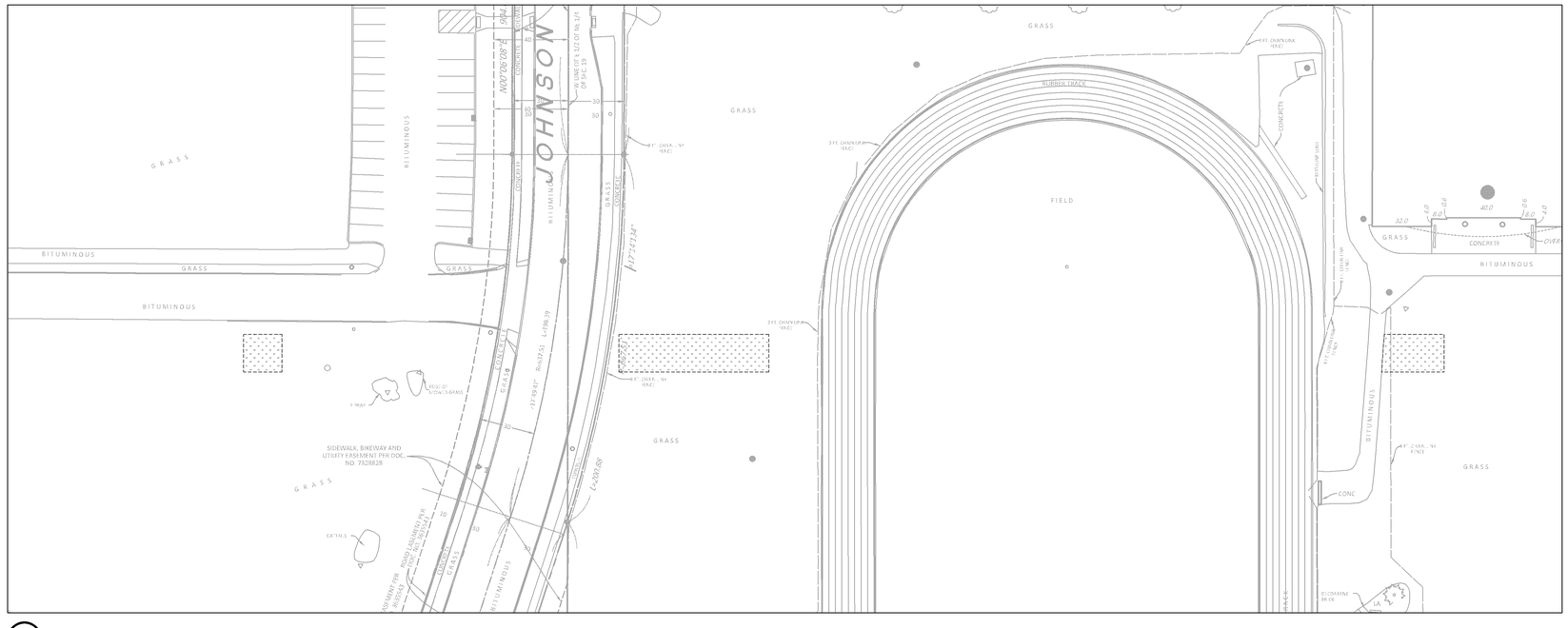

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C1.11

PLANT SCHEDULE

9 / C2.11 SHRUBS	CODE	BOTANICAL / COMMON NAME QTY	CONT
	AM	Aronia melanocarpa / Chokeberry 7	#5

9 / C2.11 PERENNIALS / ORNAMENTAL GRASSES	CODE	BOTANICAL / COMMON NAME QTY	CONT
	BA	Baptisia alba / Wild Indigo 9	4"
	EJ	Eupatorium maculatum / Joe Pye Weed 13	#1
	LC	Lobelia cardinalis / Cardinal Flower 15	4"
	RS	Rudbeckia subtomentosa / Sweet Black-eyed Susan 11	4"

NOTES:

1. REFER TO SHEET C1.31, GRADING AND DRAINAGE PLAN, FOR GENERAL NOTES.
2. CHECK ALL PLAN AND DETAIL DIMENSIONS AND VERIFY SAME BEFORE FIELD LAYOUT.
3. ALL DISTURBED AREAS OUTSIDE THE BUILDING PAD WHICH ARE NOT DESIGNATED TO BE PAVED SHALL RECEIVE AT LEAST 6" OF TOPSOIL AND SHALL BE SODDED.
4. WHERE NEW SOD MEETS EXISTING TURF, EXISTING TURF EDGE SHALL BE CUT TO ALLOW FOR A CONSISTENT, UNIFORM STRAIGHT EDGE. JAGGED OR UNEVEN EDGES WILL NOT BE ACCEPTABLE. REMOVE TOPSOIL AT JOINT BETWEEN EXISTING AND NEW AS REQUIRED TO ALLOW NEW SOD SURFACE TO BE FLUSH WITH EXISTING.
5. FAILURE OF TURF DEVELOPMENT: IN THE EVENT THE CONTRACTOR FAILS TO PROVIDE AN ACCEPTABLE TURF, THE CONTRACTOR SHALL RE-SOD ALL APPLICABLE AREAS, AT NO ADDITIONAL COST TO THE OWNER, TO THE SATISFACTION OF THE ENGINEER.

LEGEND

- 1 / C2.11 — REFERENCE KEY TO SITE DETAILS (DETAIL I.D NUMBER (TOP), DETAIL SHEET NUMBER (BOTTOM))
- PROPOSED CONCRETE WALK (24 / C2.11)
- PROPOSED CONCRETE SLAB (24 / C2.11)
- PROPOSED BITUMINOUS PAVEMENT (24 / C2.11)
- APPROXIMATE SOD LIMITS
- PROPOSED BOLLARD (25 / C2.11)
- PROPOSED MANHOLE (MH) (15 / C2.11) (16 / C2.11)
- PROPOSED CATCH BASIN (CB) (19 / C2.11)
- PROPOSED HYDRANT (HYD) (13 / C2.11)
- PROPOSED GATE VALVE (GV) (12 / C2.11)
- PROPOSED BUILDING STOOP - REFER TO ARCHITECTURAL PLANS
- PROPERTY LINE

0 15 30

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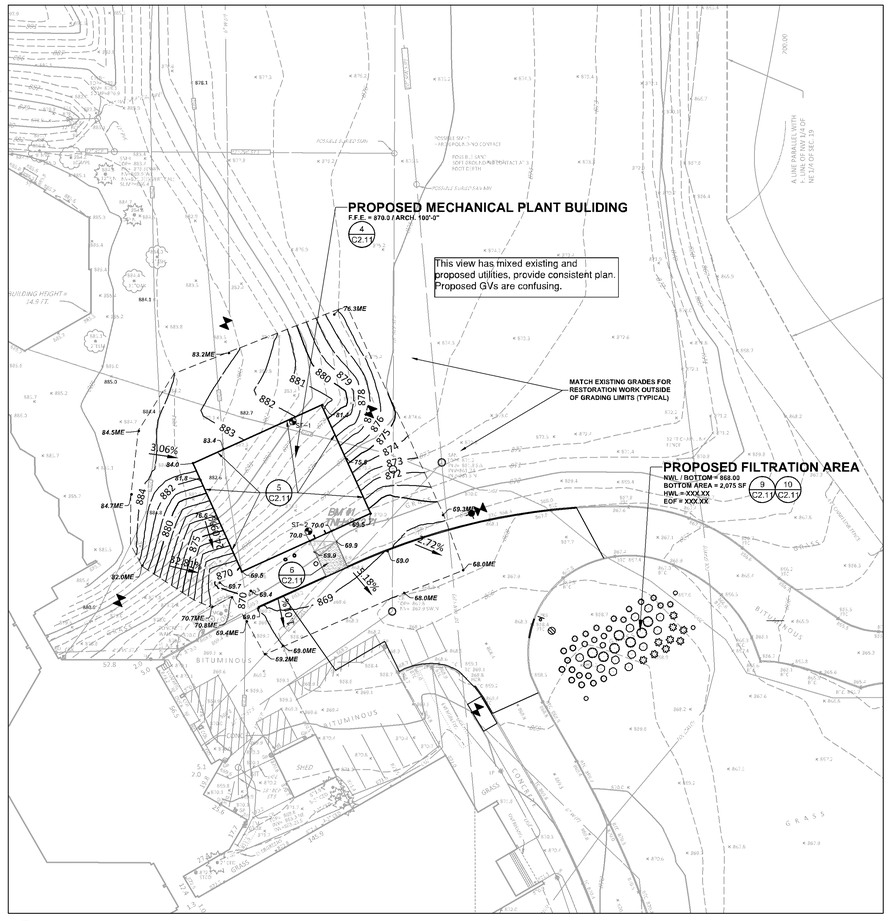
North

SITE PLAN

Scale: 1" = 30'

C1.21



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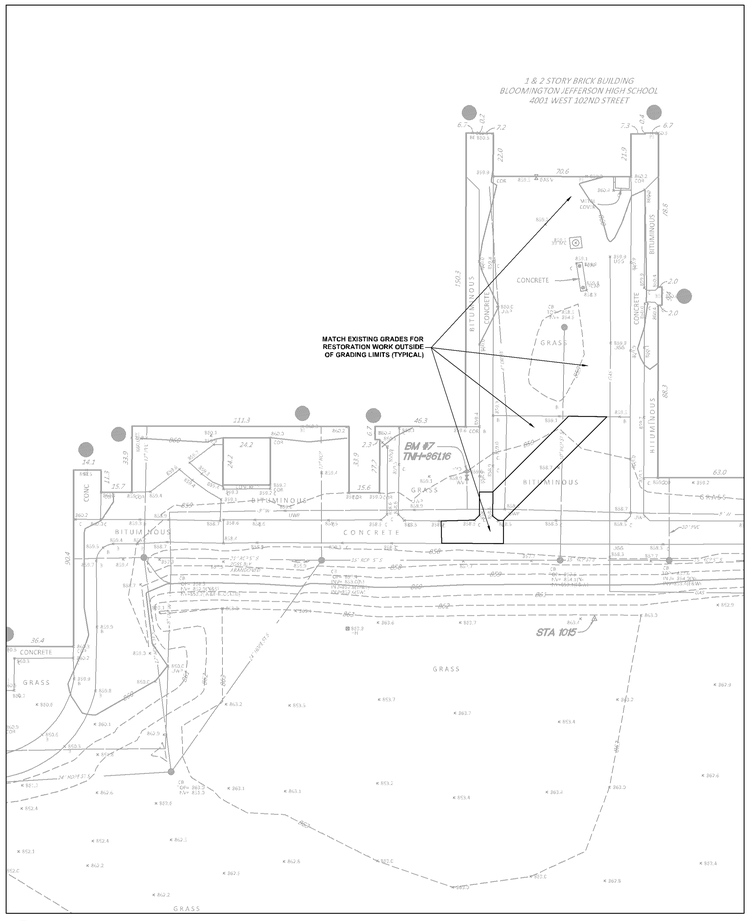

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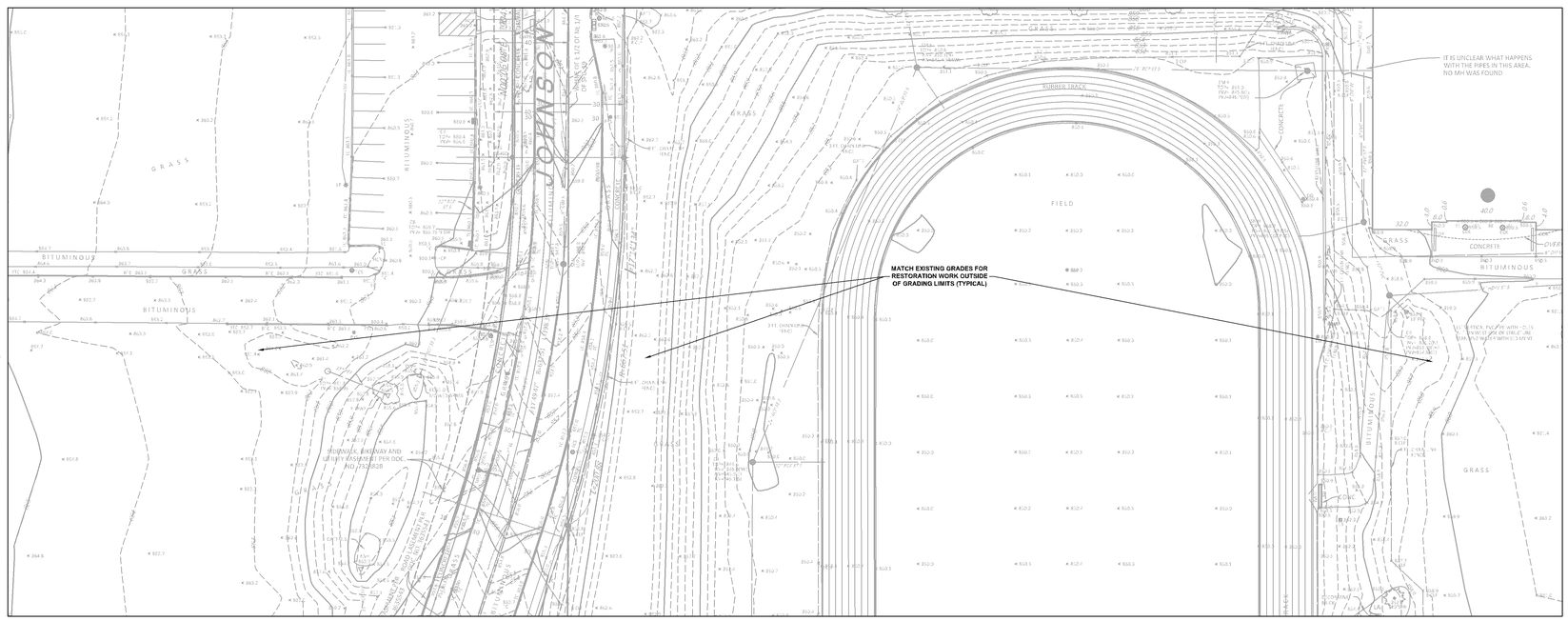

3 C1.11

GENERAL NOTES

1. ALL CONSTRUCTION MUST COMPLY WITH APPLICABLE STATE AND LOCAL ORDINANCES.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR AND SHALL PAY FOR ALL CONSTRUCTION STAKING / LAYOUT.
3. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL RELATED CONSTRUCTION PERMITS, INCLUDING THE NPDES PERMIT FROM THE MPCA. SUBMIT A COPY OF ALL PERMITS TO THE CITY.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL SIGNAGE (CONSTRUCTION ZONES) NECESSARY TO CONSTRUCT PROPOSED IMPROVEMENTS. ALL SIGNAGE LAYOUTS MUST BE DESIGNED BY THE CONTRACTOR AND APPROVED BY LOCAL AUTHORITIES.
5. INSTALL CONTROL FENCING AND BARRICADING AS NECESSARY TO PROTECT THE PUBLIC.
6. INSPECT SITE AND REVIEW SOIL BORINGS TO DETERMINE EXTENT OF WORK AND NATURE OF MATERIALS TO BE HANDLED.
7. REFER TO SPECIFICATIONS FOR DEWATERING REQUIREMENTS.
8. CHECK ALL PLAN AND DETAIL DIMENSIONS AND VERIFY SAME BEFORE FIELD LAYOUT.
9. REFER TO ARCHITECTURAL PLANS FOR BUILDING AND STOOP DIMENSIONS AND LAYOUT.
10. REFER TO THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE, PART OF SECTION 01 89 13, FOR EROSION CONTROL REQUIREMENTS. SECTION 31 00 00 SHALL BE RESPONSIBLE FOR FULL IMPLEMENTATION OF THE SWPPP.
11. MAINTAIN ADJACENT PROPERTY AND PUBLIC STREETS CLEAN FROM CONSTRUCTION CAUSED DIRT AND DEBRIS ON A DAILY BASIS. PROTECT DRAINAGE SYSTEMS FROM SEDIMENTATION AS A RESULT OF CONSTRUCTION RELATED DIRT AND DEBRIS.
12. MAINTAIN DUST CONTROL DURING GRADING OPERATIONS.
13. ALL EROSION CONTROL METHODS SHALL COMPLY WITH MPCA AND LOCAL REGULATIONS.
14. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO SITE AND PROTECT EXISTING SITE FEATURES (INCLUDING TURF AND VEGETATION) WHICH ARE TO REMAIN.
15. PROPOSED CONTOURS AND SPOT ELEVATIONS ARE SHOWN TO FINISH GRADE UNLESS OTHERWISE NOTED.
16. PROPOSED ELEVATIONS SHOWN TYPICALLY AS 60.1 OR 60 SHALL BE UNDERSTOOD TO MEAN 860.1 OR 860.
17. SPOT ELEVATIONS SHOWN IN PARKING LOTS, DRIVES AND ROADS INDICATE GUTTER GRADES, UNLESS NOTED OTHERWISE. SPOT ELEVATIONS WITH LABELS OUTSIDE THE BUILDING PERIMETER INDICATE PROPOSED GRADES OUTSIDE THE BUILDING. SPOT ELEVATIONS WITH LABELS INSIDE THE BUILDING PERIMETER INDICATE PROPOSED FINISH FLOOR ELEVATIONS.
18. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING QUANTITIES OF CUT, FILL AND WASTE MATERIALS TO BE HANDLED, AND FOR AMOUNT OF GRADING TO BE DONE IN ORDER TO COMPLETELY PERFORM ALL WORK INDICATED ON THE DRAWINGS. IMPORT SUITABLE MATERIAL AND EXPORT UNSUITABLE / EXCESS / WASTE MATERIAL AS REQUIRED. ALL COSTS ASSOCIATED WITH IMPORTING AND EXPORTING MATERIALS SHALL BE INCIDENTAL TO THE CONTRACT.
19. NO FINISHED SLOPES SHALL EXCEED 3' HORIZONTAL TO 1' VERTICAL (3:1), UNLESS OTHERWISE NOTED.
20. ALL DISTURBED AREAS OUTSIDE THE BUILDING PAD WHICH ARE NOT DESIGNATED TO BE PAVED SHALL RECEIVE AT LEAST 6" OF TOPSOIL AND SHALL BE SODDED.
21. WHERE NEW SOD MEETS EXISTING SOD, EXISTING SOD EDGE SHALL BE CUT TO ALLOW FOR A CONSISTENT, UNIFORM STRAIGHT EDGE. JAGGED OR UNEVEN EDGES WILL NOT BE ACCEPTABLE. REMOVE TOPSOIL AT JOINT BETWEEN EXISTING AND NEW AS REQUIRED TO ALLOW NEW SOD SURFACE TO BE FLUSH WITH EXISTING.
22. FAILURE OF TURF DEVELOPMENT: IN THE EVENT THE CONTRACTOR FAILS TO PROVIDE AN ACCEPTABLE TURF, THE CONTRACTOR SHALL RE-SOD ALL APPLICABLE AREAS, AT NO ADDITIONAL COST TO THE OWNER, TO THE SATISFACTION OF THE ENGINEER.
23. ANY MANHOLE, CATCH BASIN, STORM SEWER, SANITARY SEWER, DRAINTILE OR OTHER POTENTIAL SOURCE FOR CONTAMINATION SHALL BE INSTALLED AT LEAST 10 FEET HORIZONTALLY FROM ANY WATERMAIN PER MINNESOTA PLUMBING CODE. THIS ISOLATION DISTANCE SHALL BE MEASURED FROM THE OUTER EDGE OF THE PIPE TO THE OUTER EDGE OF THE CONTAMINATION SOURCE (OUTER EDGE OF STRUCTURES OR PIPING OR SIMILAR).
24. LOCATE ALL EXISTING UTILITIES, VERIFY LOCATION, SIZE AND INVERT ELEVATION OF ALL EXISTING UTILITIES. VERIFY LOCATIONS, SIZES AND ELEVATIONS OF SAME BEFORE BEGINNING CONSTRUCTION.

LEGEND

- REFERENCE KEY TO SITE DETAILS — DETAIL I.D NUMBER (TOP) / DETAIL SHEET NUMBER (BOTTOM)
- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION — ME = MATCH EXISTING / EOF = EMERGENCY OVERFLOW
- PROPOSED GRADING LIMITS
- PROPOSED SAND SUBBASE AT FROST FOOTED STOOPS
- APPROXIMATE SOIL BORING LOCATION
- PROPOSED MANHOLE (MH)
- PROPOSED CATCH BASIN (CB)
- PROPOSED HYDRANT (HYD)
- PROPOSED GATE VALVE (GV)
- PROPOSED BUILDING STOOP - REFER TO ARCHITECTURAL PLANS
- PROPERTY LINE

BENCHMARKS - OLSON MS (FIELD VERIFY BEFORE USING)

1.) Top of top nut of fire hydrant northeast of loading dock, north of ring road, 120± feet from Olson Middle School. Elevation = 872.71 feet

2.) Top of top nut of fire hydrant on east side of ring road, 50± feet east of Olson Middle School, north of southwest baseball diamond. Elevation = 872.96 feet

3.) Top of top nut of fire hydrant west side of Johnson Avenue South near west drive entrance to Jefferson High School. Elevation = 865.87 feet

BENCHMARKS - JEFFERSON HS (FIELD VERIFY BEFORE USING)

1.) Top of top nut of fire hydrant 45 feet +/- westerly of a northwest corner of Jefferson High School. Elevation = 874.47 feet

2.) Top of top nut of fire hydrant west of Jefferson High School and northeast of track. Elevation = 866.37 feet

3.) Top of top nut of fire hydrant west side of Johnson Avenue South near west drive entrance to Jefferson High School. Elevation = 865.87 feet

4.) Top of top nut of fire hydrant south of the southwest corner of the northeast parking lot and 95 feet +/- northwesterly of building entrance #2. Elevation = 872.62 feet

5.) Top of top nut of the first fire hydrant south of West 102nd Street on the west side of France Avenue South. Elevation = 875.58 feet

6.) Top of top nut of fire hydrant 10 feet +/- south of the southeast corner of Jefferson High School. Elevation = 861.13 feet

7.) Top of top nut of fire hydrant lying 50 feet +/- southeast of building entrance #18. Elevation = 861.16 feet

0 15 30

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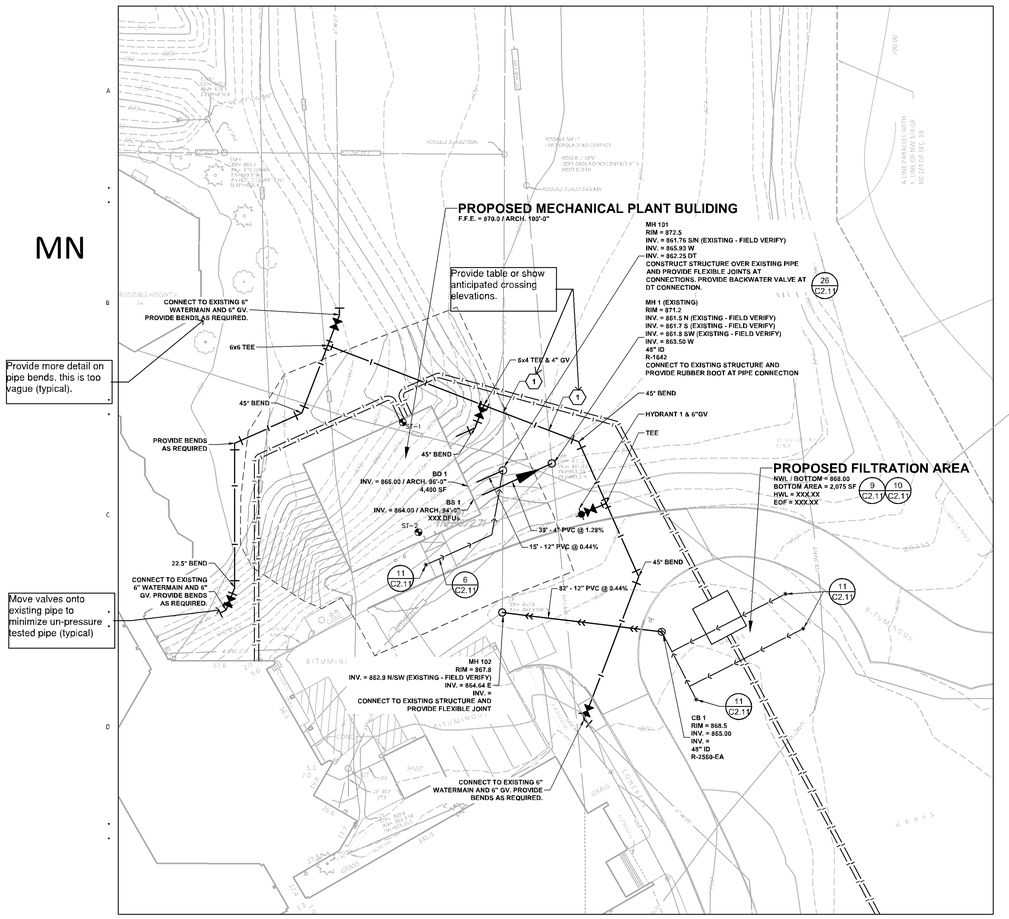
GRADING AND DRAINAGE PLAN

Scale: 1" = 30'

C1.31



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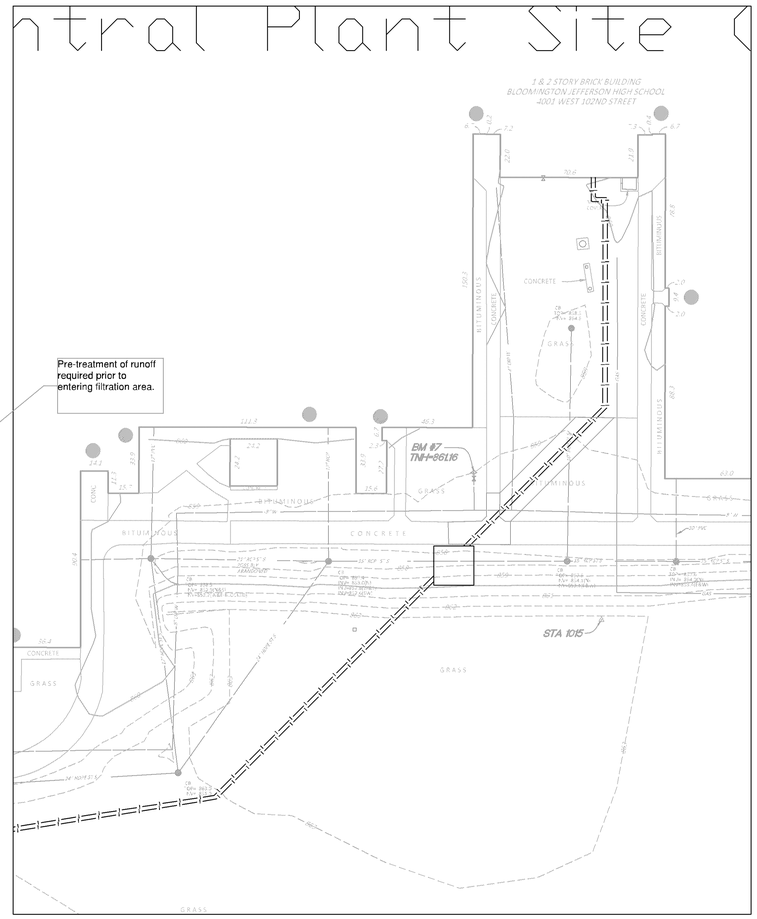

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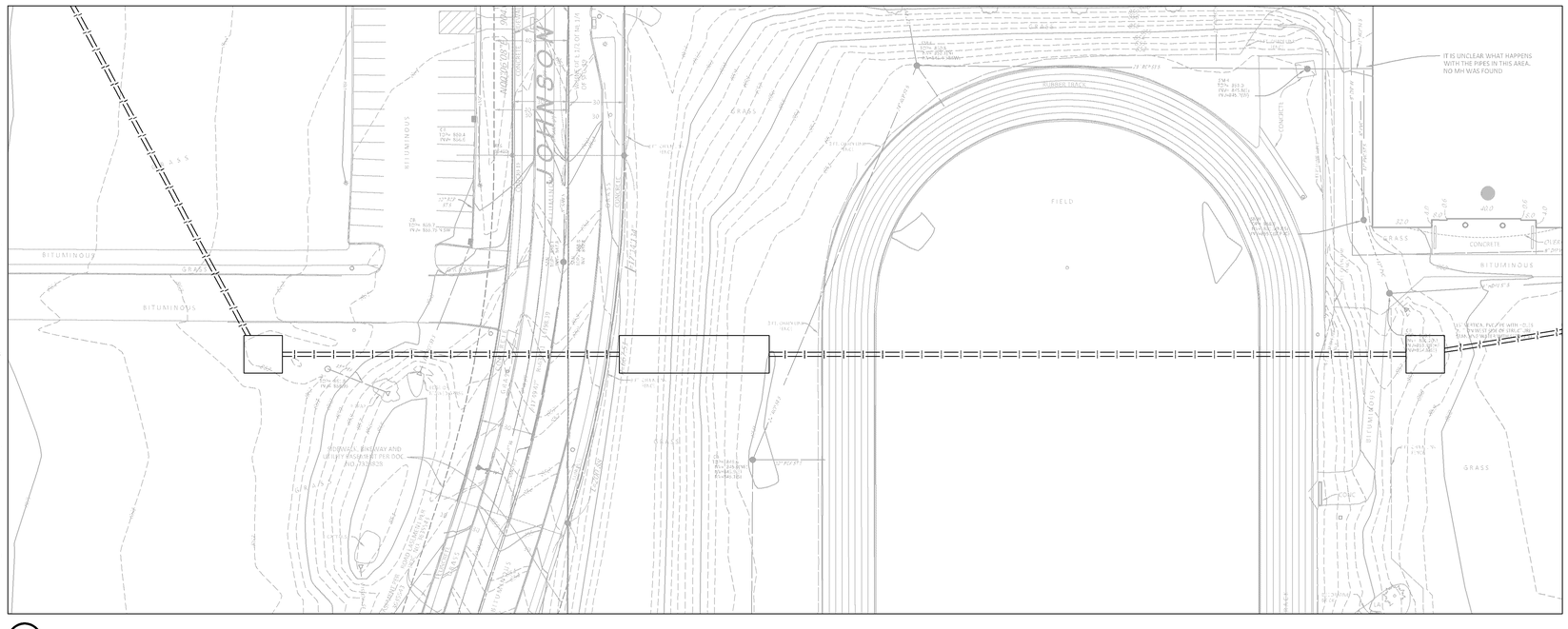

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C1.11

NOTES

1. REFER TO SHEET C1.31, GRADING AND DRAINAGE PLAN, FOR GENERAL NOTES.
2. ALL WATERMAIN PIPE SHALL BE DIP, CLASS 52. ALL WATERMAIN SHALL HAVE MINIMUM 7'-6" BURY (TOP OF PIPE TO FINISH GRADE). DIP SHALL BE ENCASED WITH POLYETHYLENE FILM CONFORMING TO ASTM D 1248-889.
3. ALL SANITARY SEWER PIPE SHALL BE PVC PIPE (ASTM D 3034, SDR 26), UNLESS OTHERWISE NOTED. SANITARY SEWER INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321.
4. ALL STORM SEWER PIPE SHALL BE RCP, CLASS III (MIN.), WITH FLEXIBLE WATERTIGHT JOINTS IN ACCORDANCE WITH ASTM C-361 OR PVC PIPE (ASTM D3034, SDR 35) INSTALLED IN ACCORDANCE WITH ASTM D2321, UNLESS OTHERWISE NOTED.
5. FLEXIBLE JOINTS AT STORM SEWER PIPE CONNECTIONS TO STRUCTURES:
   a. IN ACCORDANCE WITH MINNESOTA PLUMBING CODE, PROVIDE FLEXIBLE JOINTS AT ALL PIPE CONNECTIONS TO ALL STORM SEWER STRUCTURES.
   b. ACCEPTABLE MANUFACTURERS / PRODUCTS:
      i. FERNCO, "CONCRETE MANHOLE ADAPTORS" OR "LARGE-DIAMETER WATERSTOPS"
      ii. PRESS-SEAL, WATERSTOP GROUTING RINGS"
      iii. OR APPROVED EQUAL.
6. WATERMAIN SHALL BE INSTALLED AT LEAST 10 FEET HORIZONTALLY FROM ANY MANHOLE, CATCH BASIN, STORM SEWER, SANITARY SEWER, DRAINTILE OR OTHER POTENTIAL SOURCE FOR CONTAMINATION PER MINNESOTA PLUMBING CODE. THIS ISOLATION DISTANCE SHALL BE MEASURED FROM THE OUTER EDGE OF THE PIPE TO THE OUTER EDGE OF THE CONTAMINATION SOURCE (OUTER EDGE OF STRUCTURES OR PIPING OR SIMILAR).
7. ANY MANHOLE, CATCH BASIN, STORM SEWER, SANITARY SEWER, DRAINTILE OR OTHER POTENTIAL SOURCE FOR CONTAMINATION SHALL BE INSTALLED AT LEAST 10 FEET HORIZONTALLY FROM ANY WATERMAIN PER MINNESOTA PLUMBING CODE. THIS ISOLATION DISTANCE SHALL BE MEASURED FROM THE OUTER EDGE OF THE PIPE TO THE OUTER EDGE OF THE CONTAMINATION SOURCE (OUTER EDGE OF STRUCTURES OR PIPING OR SIMILAR).
8. LOCATE ALL EXISTING UTILITIES, VERIFY LOCATION, SIZE AND INVERT ELEVATION OF ALL EXISTING UTILITIES. VERIFY LOCATIONS, SIZES AND ELEVATIONS OF SAME BEFORE BEGINNING CONSTRUCTION.
9. PRIOR TO CONSTRUCTION OF PROPOSED BUILDING UTILITY SERVICES (STORM, SANITARY SEWER, WATERMAIN), VERIFY ALL PROPOSED BUILDING UTILITY SERVICE PIPE SIZES, LOCATIONS AND ELEVATIONS WITH MECHANICAL PLANS. COORDINATE CONSTRUCTION AND CONNECTIONS WITH MECHANICAL CONTRACTOR.
10. CONTRACTOR SHALL STAKE LIMITS OF WALKS AND CURBING PRIOR TO INSTALLATION OF GATE VALVES, CATCH BASINS AND MANHOLES. GATE VALVE AND MANHOLE LOCATIONS SHALL BE ADJUSTED TO AVOID PLACEMENT OF THESE STRUCTURES IN WALKS AND CURB AND GUTTER. CURB AND GUTTER SHALL BE STAKED TO ALLOW CURB INLET TYPE CATCH BASINS TO BE PROPERLY LOCATED IN LINE WITH CURBING.

LEGEND

- EXISTING CONTOUR
- 850 — PROPOSED CONTOUR
- 54.6 — PROPOSED SPOT ELEVATION (ME = MATCH EXISTING)
- PROPOSED GRADING LIMITS
- ST-1 — APPROXIMATE SOIL BORING LOCATION
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED WATERMAIN
- PROPOSED DRAINTILE (9 C2.11) (9 C2.11)
- PROPOSED MANHOLE (MH) (15 C2.11) (16 C2.11)
- PROPOSED CATCH BASIN (CB) (17 C2.11)
- PROPOSED HYDRANT (HYD) (13 C2.11)
- PROPOSED GATE VALVE (GV) (14 C2.11)
- 1 — PROVIDE MINIMUM 18" VERTICAL SEPARATION AT CROSSING - PROVIDE VERTICAL BENDS IN WATERMAIN AS REQUIRED TO ACCOMPLISH. CENTER ONE LENGTH WATERMAIN PIPE ON CROSSING.
- PROPOSED CHILLED WATER PIPING - REFER TO MECHANICAL PLANS
- PROPOSED BUILDING STOOP - REFER TO ARCHITECTURAL PLANS
- PROPERTY LINE

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ANDERSON - JOHNSON ASSOCIATES, INC.
A BOLTON & MENK COMPANY

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of MINNESOTA

DAVID A. REY
Registration Number 40180 Date 03/31/2021

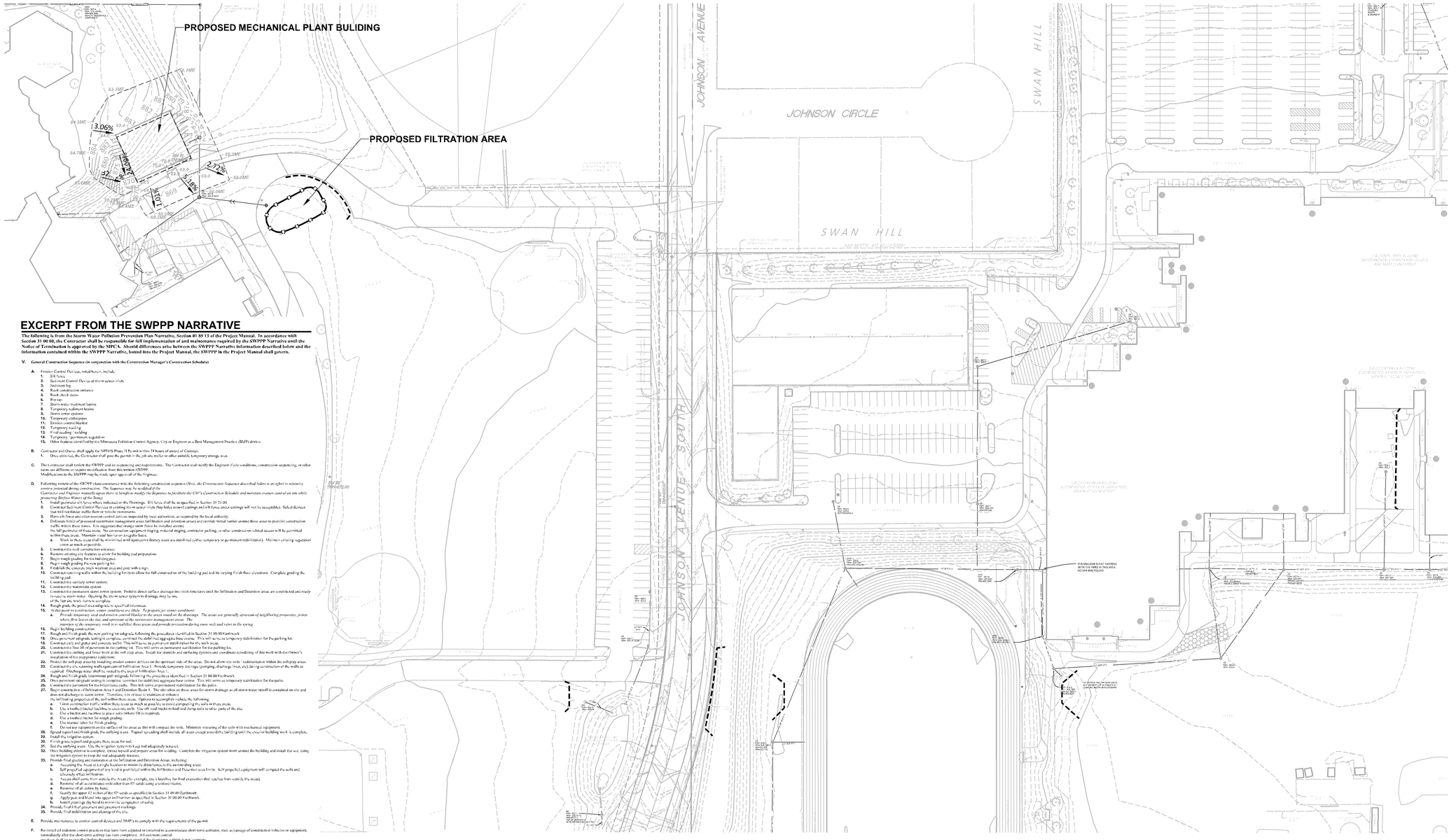
Revisions		
Description	Date	Num.

Comm: 202115
Date: 03/19/2021
Drawn: MET
Chock: DAR
North

UTILITY PLAN

Scale: 1" = 30'

C1.41



EXCERPT FROM THE SWPPP NARRATIVE

The following is from the Storm Water Pollution Prevention Plan Narrative, Section 01 80 13 of the Project Manual. In accordance with Section 31 00 00, the Contractor shall be responsible for full implementation of and maintenance required by the SWPPP Narrative until the Notice of Termination is approved by the MPCA. Should differences arise between the SWPPP Narrative information described below and the information contained within the SWPPP Narrative, found into the Project Manual, the SWPPP in the Project Manual shall govern.

V. General Construction Sequence (in conjunction with the Construction Manager's Construction Schedule)

A. *Erosion Control Devices*, noted herein, include:
1. Silt fence.
2. Sediment Control Device at storm sewer inlets.
3. Sediment log.
4. Rock construction entrance.
5. Rock check dams.
6. Riprap.
7. Bioretention treatment basins.
8. Temporary sediment basins.
9. Storm sewer systems.
10. Temporary outlet pipes.
11. Erosion control blanket.
12. Temporary seeding.
13. Final seeding / sodding.
14. Temporary / permanent vegetation.
15. Other features identified by the Minnesota Pollution Control Agency, City or Engineer as a Best Management Practice (BMP) device.

B. Contractor and Owner shall apply for NPDES Phase II Permit within 24 hours of award of Contract.
1. Once obtained, the Contractor shall post the permit in the job site trailer or other suitable, temporary storage area.

C. The Contractor shall review the SWPPP and its sequencing and requirements. The Contractor shall notify the Engineer if site conditions, construction sequencing, or other items are different or require modification from this written SWPPP. Modifications to the SWPPP may be made upon approval of the Engineer.

D. Following review of the SWPPP plans coordinate with the following construction sequence (*Note: the Construction Sequence described below is an effort to minimize erosion potential during construction. The Sequence may be modified if the Contractor and Engineer mutually agree there is benefit to modify the Sequence to facilitate the CM's Construction Schedule and maintain erosion control on site while protecting Surface Waters of the State.*)
1. Install perimeter silt fence where indicated on the Drawings. Silt fence shall be as specified in Section 31 25 00.
2. Install inlet protection devices at existing storm sewer inlets that have invert castings and if Contractor similar castings will not be acceptable). Select devices that will not hinder traffic flow or vehicle movements.
3. Have silt fence and other erosion control devices inspected by local authorities, as required by the local authority.
4. Delineate limits of protected stormwater management areas (infiltration and detention areas) and provide initial further erosion; these areas to prohibit construction traffic within these zones. It is suggested that orange snow fence be installed around the full perimeter of these areas. No construction equipment staging, material staging, contractor parking, or other construction related issues will be permitted within these areas. Maintain visual barrier on a regular basis.
   a. Work in these areas shall be minimized until approved sediment basins are established (either temporary or permanent stabilization). Maintain existing vegetation cover as much as possible.
5. Construct the rock construction entrance.
6. Remove existing site features to allow for building pad preparation.
7. Begin rough grading the for building pad.
8. Begin rough grading the new parking lot.
9. Establish the concrete truck washout areas and post with a sign.
10. Construct retaining walls within the building limits to allow for full construction of the building pad and its varying finish floor elevations. Complete grading the building pad.
11. Construct the sanitary sewer system.
12. Construct the watermain system.
13. Construct the permanent storm sewer system. Prohibit direct surface drainage into inlet structures until the Infiltration and Detention areas are constructed and ready to receive storm water. Opening the storm sewer system to drainage may be one, of the last site work items to complete.
14. Rough grade the gravel area subgrade to specified tolerances.
15. *At that point in construction, winter conditions are likely. To prepare for winter conditions:*
   a. *Provide temporary seed and erosion control blanket to the areas noted on the drawings. The areas are generally upstream of neighboring properties, points where flow leaves the site, and upstream of the stormwater management areas. The intention of the temporary work is to stabilize these areas and provide protection during snow melt and rains in the spring.*
16. Begin building construction.
17. Rough and finish grade the new parking lot subgrade following the procedures identified in Section 31 00 00 Earthwork.
18. Once pavement subgrade testing is complete, construct the established aggregate base course. This will serve as temporary stabilization for the parking lot.
19. Construct curb and gutter and concrete walks. This will serve as permanent stabilization for the curb areas.
20. Construct the first lift of pavement in the parking lot. This will serve as permanent stabilization for the parking lot.
21. Construct site curbing and final work at the roof drip areas. Install the manhole and interfacing systems and coordinate scheduling of this work with the Owner's installation of the playground equipment.
22. Protect the soft play areas by installing erosion control devices on the upstream side of the areas. Do not allow site work / sedimentation within the soft play areas.
23. Construct the site retaining walls upstream of Infiltration Area 1. Provide temporary drainage (pumping, discharge hose, etc) during construction of the walls as required. Discharge water shall be routed to the area of Infiltration Area 1.
24. Rough and finish grade, bituminous path subgrade, following the procedures identified in Section 31 00 00 Earthwork.
25. Once pavement subgrade testing is complete, construct the established aggregate base course. This will serve as temporary stabilization for the paths.
26. Construct the pavement for the bituminous walks. This will serve as permanent stabilization for the paths.
27. Begin construction of Infiltration Area 1 and Detention Basin 1. The site relies on these areas for storm drainage as all storm water runoff is contained on site and does not discharge to storm sewer. Therefore, it is critical to maintain or enhance the infiltrating properties of the soils within these areas. Options to accomplish include the following:
   a. Use a backhoe bucket to excavate the areas to reach as grade by to avoid compacting the soils with track treads.
   b. Use a toothed bucket backhoe to excavate soils. Use off-road trucks to haul and dump soils to other parts of the site.
   c. Use a bucket and backhoe to place soils (where fill is required).
   d. Use a toothed bucket for rough grading.
   e. Use manual labor for finish grading.
   f. Do not use equipment on the surface of the areas as this will compact the soils. Minimize crossing of the soils with mechanical equipment.
28. Spread topsoil into finish grade, the outlying areas. Topsoil spreading shall include all areas except around the building until the exterior building work is complete.
29. Install the irrigation system.
30. Finish grade topsoil and prepare these areas for sod.
31. Sod the outlying areas. Use the irrigation system to keep sod adequately watered.
32. Once building exterior is complete, retrace topsoil and prepare areas for sodding. Complete the irrigation system work around the building and install the sod, using the irrigation system to keep the sod adequately watered.
33. Provide final grading and restoration at the Infiltration and Detention Areas, including:
   a. Excavating the Areas in a single location to minimize disturbance to the surrounding areas.
   b. Self-propelled equipment of any kind is prohibited within the Infiltration and Detention area limits. Self-propelled equipment will compact the soils and adversely affect infiltration.
   c. Access shall come from outside the Areas (for example, use a backhoe for final excavation that reaches from outside the areas).
   d. Removal of all accumulated soils other than SP sands using a toothed bucket.
   e. Removal of all debris by hand.
   f. Scarify the upper 12 inches of the SP sands as specified in Section 31 00 00 Earthwork.
   g. Apply pan and wheel rake upper soil barrier as specified in Section 31 00 00 Earthwork.
   h. Install plantings (by hand to minimize compaction of soils).
34. Provide final lift of pavement and pavement markings.
35. Provide final stabilization and cleanup of the site.

E. Provide maintenance to entire control devices and SWPPP to comply with the requirements of the permit.

F. Re-install all sediment control practices that have been adjusted or removed to accommodate short-term activities, such as passage of construction vehicles or equipment, immediately after the short-term activity has been completed. All sediment control practices shall be re-installed before the next precipitation event if the short-term activity is not complete.

G. Inspect erosion control devices and provide routine maintenance as follows:
1. Inspect erosion control devices a minimum of once per week and **inspect, repair and cover erosion-damaged areas within 6 hours of every 24 hour storm event that is greater than or equal to 0.5 inches to comply with Minnesota R3 Guidelines requirement**. Record inspection on log posted in Contractor's construction trailer or other suitable temporary storage area. All inspections and maintenance shall be recorded within 24 hours.
   a. Records of each inspection and maintenance activity shall include:
      (1) Date and time of inspections
      (2) Name of person conducting inspection
      (3) Findings of inspections, including recommendations for corrective actions
      (4) If any discharge is observed to be occurring during the inspection, a record of all points of the property, from which there is a discharge must be made, and the discharge should be described (i.e., color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of pollutants. Photographs shall be taken and kept with the inspection log.
      (5) Corrective actions taken (including dates, times, and party completing maintenance activities).
      (6) Date and amounts of all rainfall events greater than one quarter inch (0.25 inch) in 24 hours. Rainfall amounts must be obtained by a properly maintained rain gauge located on the site or from a weather station that provides site-specific rainfall data from radar summaries.
      (7) Documentation of changes made to the SWPPP as required by the NPDES General Stormwater Permit for Construction Activity (MN R100501).
   b. Inspections are not required when the ground is frozen. The required inspections and maintenance schedule must begin within 24 hours after runoff occurs or the site on 24 hours prior to occurring construction, whichever comes first.
2. Provide maintenance for silt devices as follows:
   a. Silt fences, sediment logs, temporary berms, and erosion control devices at storm sewer inlets shall be inspected for depth of sediment, tears, to see if fabric is securely attached to support posts or structure, and to see that posts and devices are securely in place.
   b. Silt fences, sediment logs, temporary berms, and erosion control devices at storm sewer inlets, and other erosion control devices shall be cleaned when sediment reaches 1/3 the height of the erosion control device, within 24 hours.
   c. Rock construction entrances shall be inspected for clogging of rock. Wear rock that has become clogged with sediment shall be removed and replaced with fresh river rock.
   d. Repairs or replacements to all erosion control devices shall occur within 24 hours of discovery.
   e. Tracked sediment from construction vehicles on to public streets and paved areas (including paved areas on the construction site) shall be removed within 24 hours of discovery.
   f. Streets and other areas adjacent to the project must be inspected for evidence of off-site accumulations of sediment. If sediment is present, it must be removed in a manner and at a frequency sufficient to minimize offsite impacts.
   g. Removal of sediment and reestablishment of the Soc. Waters shall be accomplished within 24 hours of discovery (**note: surface waters includes curb and gutter, pavements, storm sewer, swales, or other similar storm water conveyance devices**).

H. Provide dewatering of excavations as identified in Section 31 50 00.

I. Temporary Soil Stockpiles:
1. Temporary soil stockpiles shall not be placed in surface waters of the state, including surface conveyances such as curb and gutter, swales, or ditches.
2. Install silt fence at the base of the temporary soil stockpile (shall perimeter).
3. Temporary soil stockpiles shall be seeded with temporary seed mix and hydromulch when stockpiles are left inactive for **periods longer than 48 hours to comply with Minnesota R3 Guidelines requirements**. Note, this does not apply to aggregate stockpiles or other stockpiles without significant silt, clay or organic components (clean aggregate stockpiles, clean rock, clean sand and similar clean aggregates).

J. Stabilize disturbed areas and (including stockpiles) within the following number of days of last construction activity (temporary or permanent) in that area:
1. As soon as possible but **in no case later than 48 hours to comply with Minnesota R3 Guidelines requirements**.

K. Provide maintenance of all seeded areas until fully established.

L. Provide cleaning of storm sewer system at the completion of the project. Cleaning shall include removal of accumulated sediment from all surface waters as defined by the permit (for example, curb and gutter, pavements, swales, Infiltration and Detention areas, detention areas, and storm sewer piping and structures).

M. Remove silt fence and erosion control devices at storm sewer inlets following full establishment of site vegetation. Dispose materials property off-site.

N. Apply for Notice of Termination (NOT) to MPCA. NOT must be submitted within 30 days after:
1. 70% Non-contiguous Final Stabilization (at least 80% vegetative cover), and
2. Removal of all temporary erosion control measures (silt fence, etc.), and
3. Final cleanout and maintenance of all permanent storm water facilities, and
4. Completion of all maintenance activities and site cleanup.

NOTES

1. **REFER TO SHEET C1.31, GRADING AND DRAINAGE PLAN, FOR GENERAL NOTES.**
2. **REFER TO SWPPP NARRATIVE (SECTION 01 89 13) FOR CONSTRUCTION SEQUENCING AND EROSION CONTROL REQUIREMENTS.**
3. **MAINTAIN ADJACENT PROPERTY AND PUBLIC STREETS CLEAN FROM CONSTRUCTION CAUSED DIRT AND DEBRIS ON A DAILY BASIS. PROTECT DRAINAGE SYSTEMS FROM SEDIMENTATION AS A RESULT OF CONSTRUCTION RELATED DIRT AND DEBRIS.**
4. **MAINTAIN DUST CONTROL DURING GRADING OPERATIONS.**
5. **ALL EROSION CONTROL METHODS SHALL COMPLY WITH MPCA AND OTHER LOCAL REGULATIONS.**
6. **IF EROSION AND SEDIMENT CONTROL MEASURES TAKEN ARE NOT ADEQUATE AND RESULT IN DOWNSTREAM SEDIMENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING OUT DOWNSTREAM STORM SEWERS AS NECESSARY, INCLUDING ASSOCIATED RESTORATION.**
7. **INLET PROTECTION DEVICE AT STORM SEWER INLETS. AT THE INLETS TO ALL STORM SEWER STRUCTURES, PROVIDE A PRODUCT FROM THE FOLLOWING LIST. APPROVED PRODUCTS:**
   a. **ROAD DRAIN "TOP SLAB", MANUFACTURED BY WIMCO**
   b. **ROAD DRAIN "CURB & GUTTER", MANUFACTURED BY WIMCO**
   c. **INFRASAFE "SEDIMENT CONTROL BARRIER", MANUFACTURED BY ROYAL ENVIRONMENTAL SYSTEMS, INC.**
   d. **INFRASAFE "DEBRIS COLLECTION DEVICE", MANUFACTURED BY ROYAL ENVIRONMENTAL SYSTEMS, INC.**
   e. **INFRASAFE "CULVERT INLET PROTECTOR", MANUFACTURED BY ROYAL ENVIRONMENTAL SYSTEMS, INC.**
   f. **DANDY SACK, MANUFACTURED BY DANDY PRODUCTS, INC.**
   g. **DANDY CURB SACK, MANUFACTURED BY DANDY PRODUCTS, INC.**
   h. **OR APPROVED EQUAL.**
8. **PRIOR TO CONSTRUCTION, DELINEATE TURF AND VEGETATED AREAS NOT TO BE DISTURBED WITH ORANGE SNOW FENCE. NO CONSTRUCTION TRAFFIC, EQUIPMENT OR MATERIALS SHALL BE PERMITTED TO UTILIZE, ACCESS, OR OTHERWISE ENTER THE AREAS DESIGNATED NOT TO BE DISTURBED. MINIMIZE SOIL COMPACTION AND DISRUPTION OF TOPSOIL IN AREAS OUTSIDE THE CONSTRUCTION LIMITS TO COMPLY WITH MN CONSTRUCTION STORMWATER GENERAL PERMIT.**

LEGEND

- REFERENCE KEY TO SITE DETAILS — DETAIL I.D NUMBER (TOP) / DETAIL SHEET NUMBER (BOTTOM) (e.g. 1 / C2.17)
- EXISTING CONTOUR
- 850 — PROPOSED CONTOUR
- 54.6 — PROPOSED SPOT ELEVATION — ME = MATCH EXISTING; EOF = EMERGENCY OVERFLOW
- PROPOSED GRADING LIMITS
- PROPOSED STORM SEWER
- PROPOSED MANHOLE (MH) (16 / C2.17)
- PROPOSED CATCH BASIN (CB) (17 / C2.17)
- PROPOSED SILT FENCE (1 / C2.17)
- PROPOSED SEDIMENT CONTROL LOG (2 / C2.17)
- PROPOSED ROCK CONSTRUCTION ENTRANCE (3 / C2.17)
- (A) INLET PROTECTION DEVICE AT STORM SEWER INLET
- PROPOSED BUILDING STOOP - REFER TO ARCHITECTURAL PLANS
- PROPERTY LINE

APPROXIMATE EROSION CONTROL DEVICE QUANTITIES

SILT FENCE = XXX L.F.

SEDIMENT CONTROL LOG = XXX L.F.

ROCK CONSTRUCTION ENTRANCE = XXX C.Y.

INLET PROTECTION DEVICE AT STORM SEWER INLET = XXX

0 15 30

Jefferson-Olson Mechanical Plant
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DAVID A. REY
Registration Number **40180** Date: **03/31/2021**

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Comm: **202115**
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Drawn: **MET**
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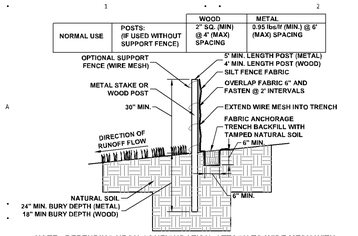
North

EROSION PREVENTION AND SEDIMENT CONTROL PLAN

Scale: **1" = 30'**

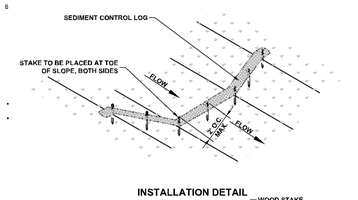
C1.51

MN

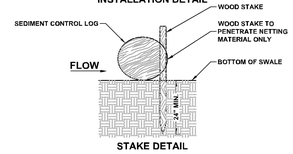


NOTE: DEPENDING UPON CONFIGURATION, ATTACH TO WIRE MESH WITH HOG RINGS, STEEL POSTS WITH TIE WIRES, OR WOOD POSTS WITH STAPLES

1 C2.11 SILT FENCE

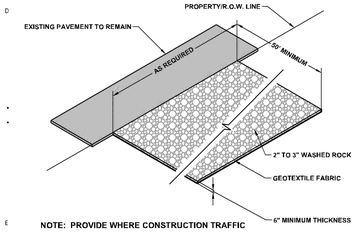


INSTALLATION DETAIL



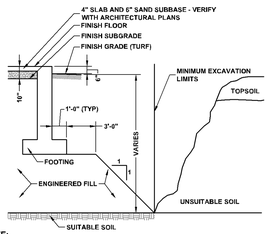
STAKE DETAIL

2 C2.11 SEDIMENT CONTROL LOG



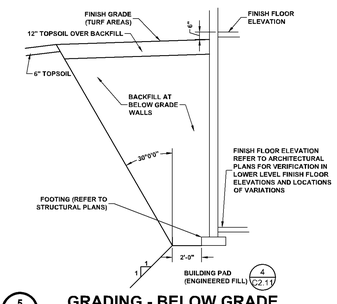
NOTE: PROVIDE WHERE CONSTRUCTION TRAFFIC ENTERS OR EXITS THE CONSTRUCTION SITE

3 C2.11 ROCK CONSTRUCTION ENTRANCE

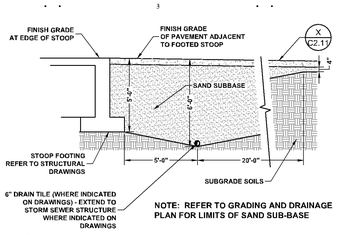


NOTE:
BOTTOM OF EXCAVATION MUST BE APPROVED BY THE SOILS ENGINEER PRIOR TO PLACEMENT OF ANY FILL.

4 C2.11 ENGINEERED FILL

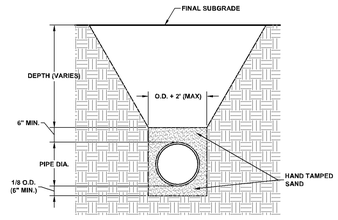


5 C2.11 GRADING - BELOW GRADE BUILDING WALLS



NOTE: REFER TO GRADING AND DRAINAGE PLAN FOR LIMITS OF SAND SUB-BASE

6 C2.11 SAND SUBBASE/ DRAIN TILE AT DOORS & FROST FOOTED STOOPS



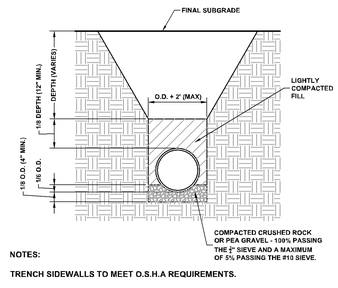
NOTES:

TRENCH SIDEWALLS TO MEET O.S.H.A REQUIREMENTS.

UPPER 3 FT. OF BACKFILL SHALL BE COMPACTED TO AT LEAST 100% STANDARD PROCTOR DRY DENSITY, BELOW THIS ELEVATION, BACKFILL SHALL BE COMPACTED TO AT LEAST 95% STANDARD PROCTOR DRY DENSITY.

INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321.

7 C2.11 PIPE BEDDING - PVC



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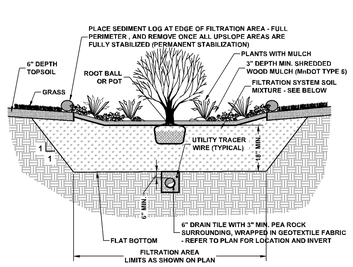
8 C2.11 PIPE BEDDING - DIP



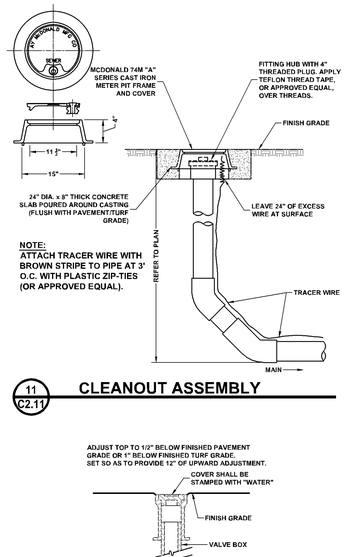
SEE NOTE 7 OF 10 / C2.11 FOR ENGINEERED SOIL MIXTURE

9 C2.11 TYPICAL SECTION THRU FILTRATION AREA

FILTRATION AREA CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING:

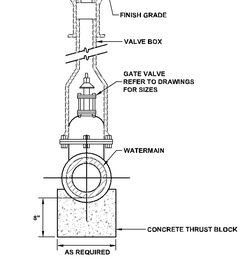
1. FILTRATION AREA LIMITS SHALL BE SURVEYED AND A VISUAL BARRIER, SUCH AS ORANGE SNOW FENCE, SHALL BE PLACED AROUND THE FULL PERIMETER TO KEEP ALL CONSTRUCTION TRAFFIC, EQUIPMENT AND MATERIAL STOCKPILES OUT OF THE PROPOSED FILTRATION AREA. THE VISUAL BARRIER MUST BE INSTALLED BEFORE NEW CONSTRUCTION BEGINS AND SHALL BE MAINTAINED THROUGH THE DURATION OF THE PROJECT.
2. DELIVER SAMPLE MATERIALS ONSITE FOR PRIOR APPROVAL, PRIOR TO BEGINNING THE INSTALLATION, SUFFICIENT MATERIAL QUANTITIES SHALL BE ONSITE TO COMPLETE THE INSTALLATION AND STABILIZE EXPOSED SOIL AREAS WITHOUT DELAY.
3. CARE MUST BE TAKEN TO AVOID CONTAMINATION OF ENGINEERED SOILS WITH SEDIMENT, IN-SITU OR TOPSOIL DURING AND AFTER INSTALLATION. MATERIALS MUST BE SEGREGATED.
4. INSTALLATION WITH DRY SOIL CONDITIONS IS CRITICAL TO PREVENT SMEARING AND COMPACTION. SCHEDULE WORK FOR PERIODS OF DRY WEATHER. DO NOT WORK IF SOIL CONDITIONS ARE WET. EXCAVATION, SOIL PLACEMENT AND RAPID STABILIZATION OF PERIMETER SLOPES WITH TURF SOD MUST OCCUR JUSTED BEFORE THE NEXT PRECIPITATION EVENT. TURF SOD PLACED IN FLOW PATHS SHALL BE SECURED WITH AT LEAST 5 STAKES PER SQUARE YARD. PLACE STAKES ALONG UPHILL SEAM EDGES TO PREVENT UNDERMINING FLOWS UNTIL SOD ROOTS ESTABLISH.
5. DO NOT LEAVE STORMWATER AREAS AND / OR PERIMETER SLOPES EXPOSED OVERNIGHT. SECURE THE SITE FROM RISK OF PRECIPITATION DAMAGES AT THE END OF EVERY WORK DAY. IN THE EVENT OF RAIN, TAKE ACTION TO DIVERT STORMWATER AWAY FROM THE WORK AREA AND TEMPORARILY COVER OF ALL EXPOSED SOILS WITH FILTER FABRIC OR IMPERMEABLE SHEETING.
6. FIELD OBSERVATION OF EXCAVATION AND SOIL PLACEMENT IS REQUIRED. NOTIFY GEOTECHNICAL ENGINEER PRIOR TO DIGGING. USE BACKHOE WITH TOOTH BUCKET FOR CELL EXCAVATION TO AVOID COMPACTING OR SMEARING OF SOILS. (DO NOT USE SAND STEER FOR EXCAVATION WITHIN THE CELL) USE EXCAVATOR BUCKET TO PLACE MATERIALS. CONSTRUCTION EQUIPMENT SHALL NOT BE ALLOWED INTO THE STORMWATER AREAS. LEVELING AND FINAL GRADING WITHIN THE CELL MUST BE COMPLETED BY HAND.
7. FILTRATION AREA SOIL MIX SHALL BE MINNESOTA STORMWATER MANUAL 4.1.2 MIX B: ENHANCED FILTRATION BLEND (WELL BLENDED MIXTURE OF 70%, ASTM C-33 COARSE WASHED SAND (MN/DOT 3126) AND 30% MN/DOT 3890 GRADE 2 LEAF LITTER COMPOST. THE MATERIAL SUPPLIER SHALL PROVIDE DOCUMENTATION THAT THE COMPOST HAS BEEN SAMPLED AND TESTED AS REQUIRED BY THE SEAL OF TESTING ASSURANCE (STA) PROGRAM OF THE UNITED STATES COMPOSTING COUNCIL (USCC) AND A GRADATION SIEVE ANALYSIS FOR THE WASHED SAND. THE ENGINEERED SOIL SHALL NOT CONTAIN ANY TOPSOIL OR FILTER AGGREGATE WITH FINES.
8. INSTALL PLANTINGS BY HAND.
9. INSTALLED SOD AND PLANTINGS REQUIRE A TOTAL OF 1" OF WATER PER WEEK AND ACTIVE WEED MANAGEMENT UNTIL WELL ESTABLISHED. WATERING COSTS ARE CONSIDERED INCIDENTAL TO SOD AND PLANTING INSTALLATION. CONSTRUCT A TEMPORARY IRRIGATION SYSTEM, CONSISTING OF ARGYE GROUND HEADS, PIPING, VALVES, ETC., FOR WATERING UNTIL VEGETATION IS ESTABLISHED. DO NOT USE A WATER TRUCK AS THE FORCE OF THE WATER WILL ADVERSELY AFFECT THE STORMWATER AREA SOILS.
10. REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS SHALL BE DONE BY HAND OR, IF SELF-PROPELLED EQUIPMENT IS REQUIRED, FROM OUTSIDE THE PERIMETER OF THE FILTRATION AREAS.

10 C2.11 FILTRATION AREA CONSTRUCTION NOTES

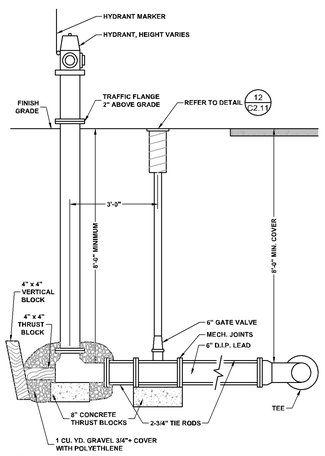


NOTE:
ATTACH TRACER WIRE WITH BROWN STRIPE TO PIPE AT 3' O.C. WITH PLASTIC ZIP-TIES (OR APPROVED EQUAL).

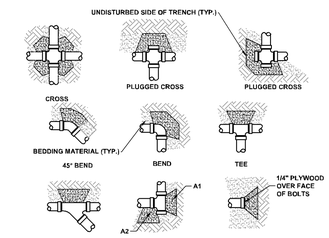
11 C2.11 CLEANOUT ASSEMBLY



12 C2.11 GATE VALVE BOX



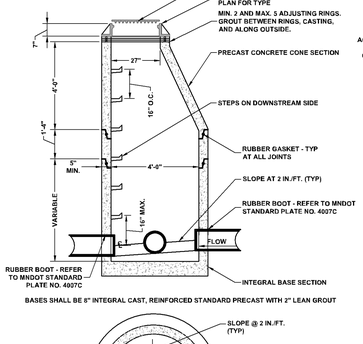
13 C2.11 FIRE HYDRANT



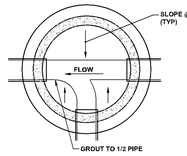
NOMINAL FITTING SIZE (INCHES)	TEE, WYE, PLUG, OR CAP	90° BEND, PLUGGED CROSS	TEE PLUGGED ON RUN A1	TEE PLUGGED ON RUN A2	45° BEND	22.5° BEND	11.25° BEND
4	1.0	1.4	1.9	1.4	1.0	-	-
6	2.1	3.0	4.3	3.0	1.6	1.0	-
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.6	1.2
12	8.5	12.0	17.0	12.0	6.6	3.4	1.7
14	11.5	16.3	23.0	16.3	8.9	4.6	2.3
16	15.0	21.3	30.0	21.3	11.6	6.0	3.0
18	19.0	27.0	38.0	27.0	14.6	7.6	3.6
20	23.5	33.3	47.0	33.3	18.1	9.4	4.7
24	34.0	48.0	68.0	48.0	26.2	13.6	6.8

NOTES:
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. KEEP CONCRETE CLEAR OF PIPE JOINTS, NUTS AND BOLTS.
3. IF NOT SHOWN ON PLANS, REQUIRED BEARING AT FITTINGS SHALL BE AS INDICATED ABOVE, ADJUSTED IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS(ES).
4. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN THIS STANDARD DETAIL.
5. ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 P.S.I. AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150) X (200/SOIL BEARING STRESS) X (TABLE VALUE).

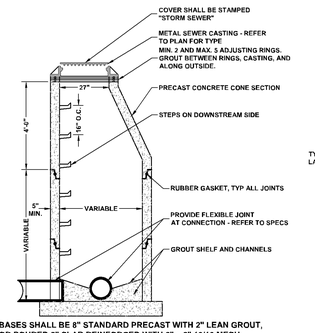
14 C2.11 THRUST BLOCK



BASES SHALL BE 8" INTEGRAL CAST, REINFORCED STANDARD PRECAST WITH 2" LEAN GROUT

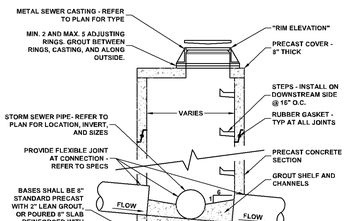


15 C2.11 SANITARY SEWER MANHOLE

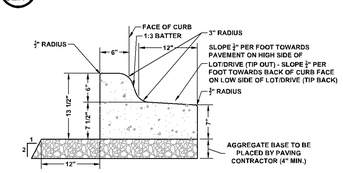


BASES SHALL BE 8" STANDARD PRECAST WITH 2" LEAN GROUT, OR POURED 8" SLAB REINFORCED WITH 6" x 6" 10/10 MESH

16 C2.11 STORM SEWER MANHOLE

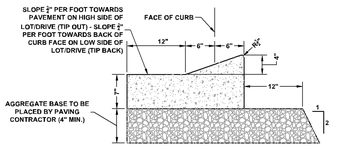


17 C2.11 CATCH BASIN



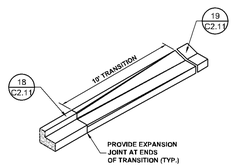
NOTE:
1. DIRECTION OF TRANSVERSE GUTTER SLOPE TO MATCH DIRECTION OF ADJACENT PAVEMENT SLOPE. CONSTRUCT WITH CURBING MACHINE.
2. AT CURB INLET CATCH BASINS, ADJUST CASTING TO BE 1" BELOW GUTTER GRADE. SLOPE GUTTER 5" EACH SIDE OF CATCH BASIN. PROVIDE POSITIVE DRAINAGE TO CATCH BASINS.

18 C2.11 B-612 CURB AND GUTTER

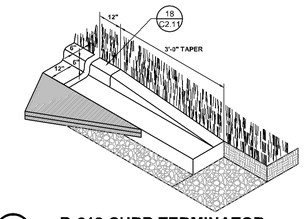


NOTE:
1. DIRECTION OF TRANSVERSE GUTTER SLOPE TO MATCH DIRECTION OF ADJACENT PAVEMENT SLOPE. CONSTRUCT WITH CURBING MACHINE.

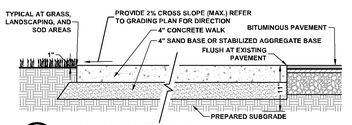
19 C2.11 D-412 CURB & GUTTER



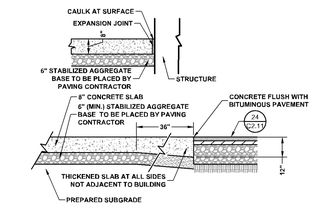
20 C2.11 CURB TRANSITION D-412 TO B-612



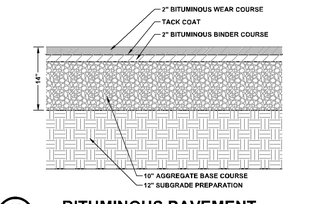
21 C2.11 B-612 CURB TERMINATOR



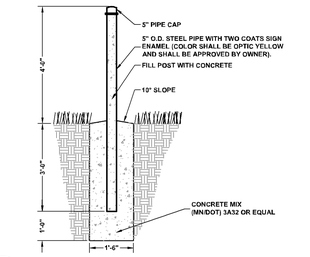
22 C2.11 CONCRETE WALK



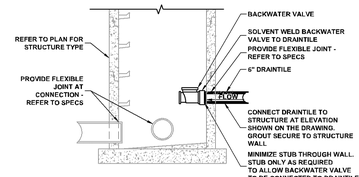
23 C2.11 CONCRETE SLAB



24 C2.11 BITUMINOUS PAVEMENT



25 C2.11 BOLLARD



26 C2.11 BACKWATER VALVE

Use Bloomington details, see website.

Jefferson-Olson Mechanical Plant
4001 West 102nd Street
Bloomington, MN 55437

Independent School District 271
1350 West 106th Street
Bloomington, MN 55431

WOLD ARCHITECTS AND ENGINEERS
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ANDERSON - JOHNSON ASSOCIATES, INC.
A BOLTON & MENK COMPANY

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of MINNESOTA

DAVID A. REY
Registration Number 40180 Date: 03/31/2021

Revisions		
Description	Date	Num.

Comm: 202115
Date: 03/19/2021
Drawn: MET
Chck: DAR

North

SITE DETAILS

Scale: Not To Scale

C2.11

C

BUILDING # 1

CODE ANALYSIS (IBC 2018)
FULLY SPRINKLERED

1. OCCUPANCY CLASSIFICATIONS — SECTION 302

J. SECTION 312, UTILITY AND MISCELLANEOUS — GROUP U

4. CONSTRUCTION TYPE / FIRE RESISTANCE — TABLE 601 / 602

A. TYPE II-B

BUILDING ELEMENT	FIRE RESISTANCE
STRUCTURAL FRAME	0 HR
EXT. BEARING WALLS	0 HR (OR PER TABLE 602)
INT. BEARING WALLS	0 HR
EXT. NON-BEARING WALLS	0 => 30 FT.
INT. NON-BEARING WALLS	0 HR
FLOOR CONSTRUCTION	0 HR
ROOF CONSTRUCTION	0 HR
VERTICAL SHAFTS	1 HR < 4 STORIES
CORRIDORS (TABLE 1020 / 706)	0 HR
EXIT ACCESS STAIRWAY (1009.3)	2 STORIES UNENCLOSED (EXCEPTION 1)

5. GENERAL BUILDING HEIGHT AND AREA — SECTION 504 / 506

A. ALLOWABLE HEIGHT AND AREAS

GROUP	CONST TYPE ALLOWABLE HEIGHT TABLE 601	TABLE 504.3	ALLOWABLE NUMBER OF STORIES	ALLOWABLE AREA TABLE 506.2	MOST RESTRICTIVE NON-SEPARATED OCCUPANCY 508.3
U	II B	75 FT	3 STORIES	34,000 S.F.	

6. ALLOWABLE AREA MODIFICATIONS — SECTION 506

A. SINGLE OCCUPANCY, ONE-STORY BUILDING 506.2.1

GROUP U

1. EQUATION 5-1 (506.2.1) :
A(a) = A(t) + [NS * I(f)]
A(a) = 34000 + [6556 * 0.75]
A(a) = 40,375 SF

2. EQUATION 5-5 (506.3.3) : AREA INCREASE DUE TO FRONTAGE
I(f) = [F/P - 0.25] * W/30
I(f) = [252'/252' - 0.25] * 30'/30
I(f) = 0.75

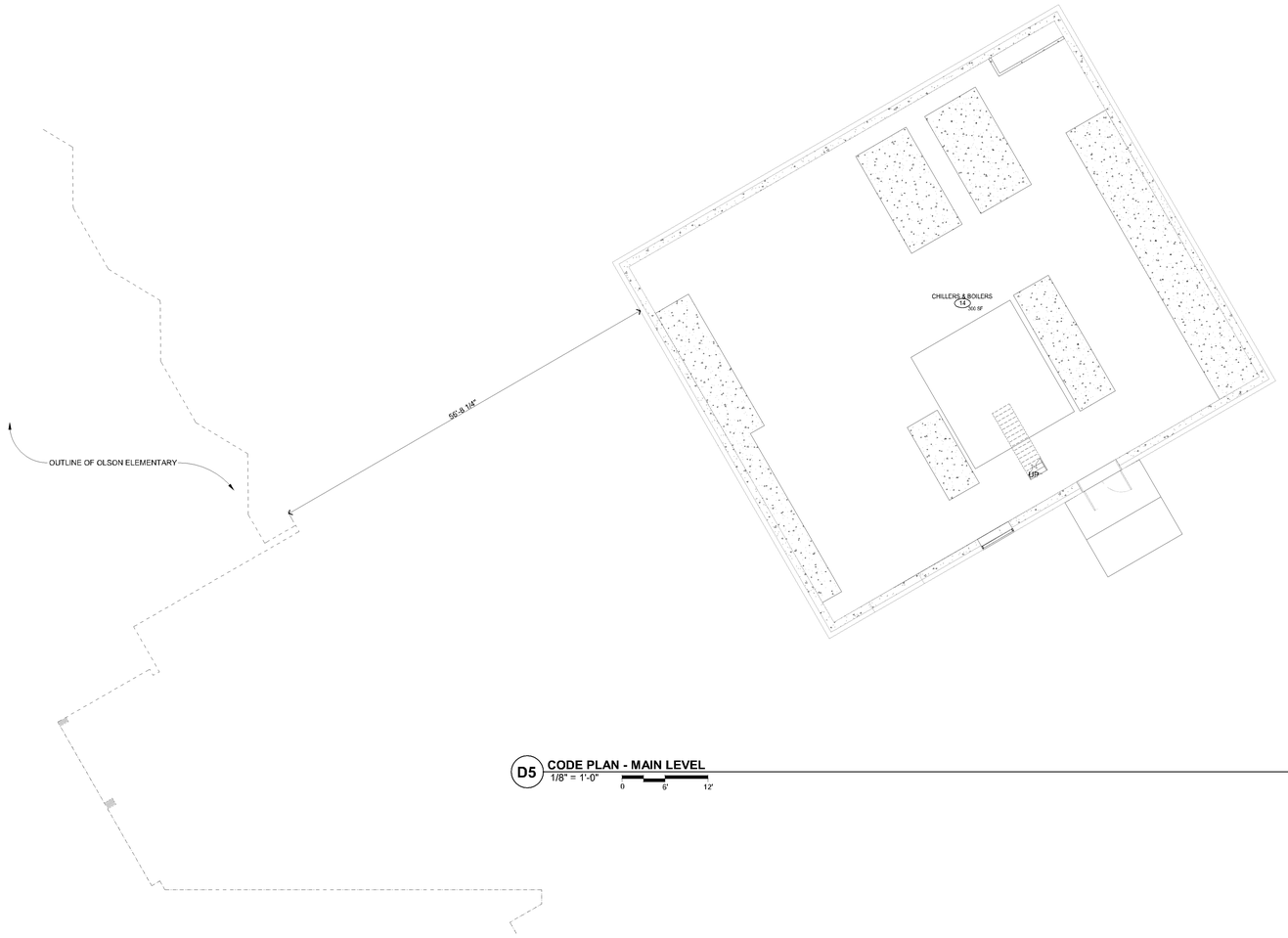
A(t) = Allowable Area Factor = 34,000
NS = Allowable Area Factor (Non Sprinklered) = 8,500
I(f) = Area factor due to frontage = 0.75

W = 30'-0"
F = Perimeter that fronts a public way = 252'-0"
P = Perimeter of entire building = 252'-0"

B. ACTUAL AREA

GROUP	MAIN LEVEL
U	3,937 SF

TOTALS: 3,937 SF



D5 **CODE PLAN - MAIN LEVEL**
1/8" = 1'-0"
0 6' 12'

MN

A

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EFFECTIVE CODE REFERENCES

2020 MINNESOTA STATE BUILDING CODE (MSBC), CHAPTER 1305, WHICH ADOPTS AND AMENDS THE 2018 INTERNATIONAL BUILDING CODE (IBC)

2020 MINNESOTA STATE MECHANICAL AND FUEL GAS CODE, CHAPTER 1346

2020 NATIONAL ELECTRICAL CODE (NEC)

2015 MINNESOTA STATE PLUMBING CODE, CHAPTER 4714

2020 MINNESOTA STATE FIRE CODE, WHICH ADOPTS AND AMENDS THE 2018 INTERNATIONAL FIRE CODE

2020 MINNESOTA COMMERCIAL ENERGY CODE, CHAPTERS 1322 & 1323

2020 MINNESOTA ACCESSIBILITY CODE, CHAPTER 1341

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed **ARCHITECT** under the laws of the State of **Minnesota**

Paul Aplikowski
License Number: **42737** Date: **Issue Date**

Revisions		
Description	Date	Num

Comm: **202115**
Date: **03/31/21**
Drawn: **SH**
Check: **PT**

North

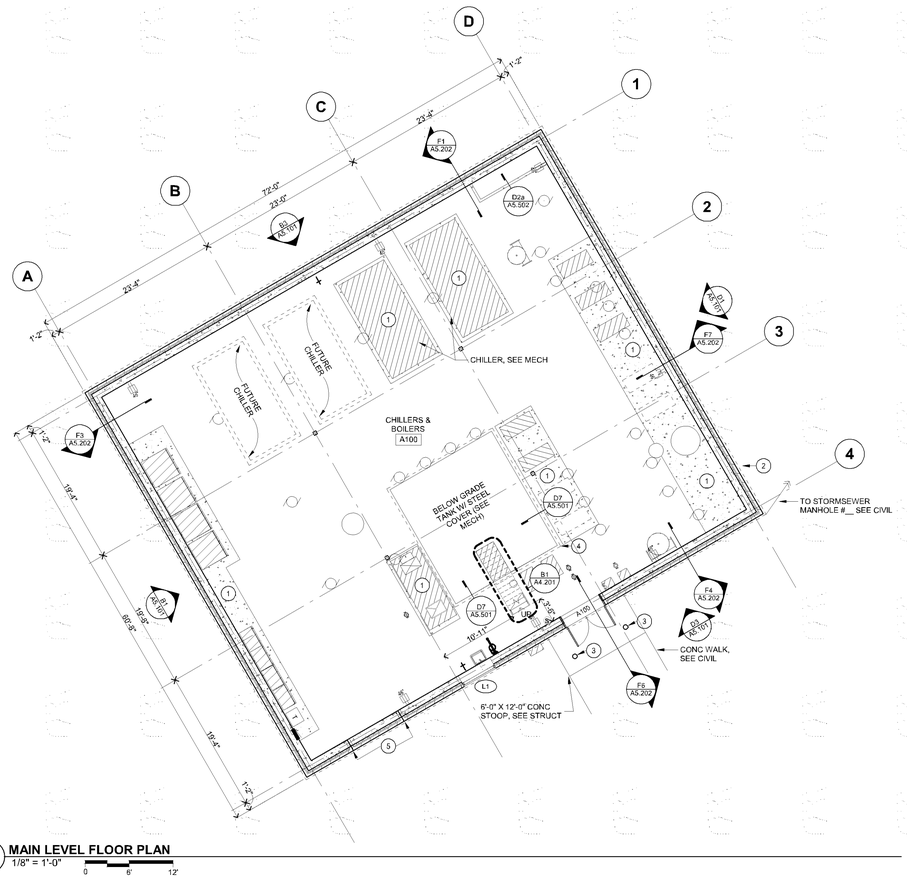
CODE PLAN

CD ESTIMATE SET
NOT FOR CONSTRUCTION

Scale: **As indicated**

A0.101

MN



D1 MAIN LEVEL FLOOR PLAN

1/8" = 1'-0"

0 6' 12'

DOOR / OPENING SCHEDULE

DOOR NO	DOOR / OPENING					LABEL/ RATING	OVERALL	FRAME				MOUNTING CONDITIONS				
	TYPE	QTY	WIDTH	HEIGHT	MATL		WIDTH	TYPE	DEPTH	MATL	GL	HEAD	JAMB	SILL	HDW GRP	REMARKS
A100	F	2	3'-0"	7'-0"	HM		6'-4"	FR 1	--	HM	--	B3/A5.502	C3/A5.502	C4/A5.502	01	

ROOM FINISH SCHEDULE

ROOM NO	ROOM NAME	FLOOR	BASE	N WALL - TYP		E WALL		S WALL		W WALL		REMARKS
				MATL	FIN	MATL	FIN	MATL	FIN	MATL	FIN	
A100	CHILLERS & BOILERS	CONC	--	C BLK	PT 6A							1,2,4

PLAN GENERAL NOTES

1. ALL PLAN DIMENSIONS ARE NOMINAL TO FACE OF WALL. WALL THICKNESSES ARE SHOWN NOMINAL, SEE WALL TYPES FOR ACTUAL THICKNESS.
3. ALL CONCRETE BLOCK WALLS ARE TO BE 8 INCHES THICK UNLESS OTHERWISE NOTED.
4. COORDINATE SIZE AND LOCATION OF ALL DUCT AND SHAFT OPENINGS IN WALLS AND FLOORS W/ MECH. AND ELEC. PROVIDE ALL REQUIRED LINTELS FOR OPENINGS. SEE LINTEL SCHEDULE.
6. SET FLOOR DRAINS 3/4" BELOW FINISHED CONCRETE FLOORS UNLESS OTHERWISE NOTED. PROVIDE CONSISTENT SLOPE FROM WALL TO DRAIN BY SLOPING CONCRETE, MIN. 1/4" PER FOOT.
7. VERIFY LOCATION, SIZE AND QUANTITY OF ALL MECHANICAL AND ELECTRICAL EQUIPMENT PADS.
10. FIRE RATED WALLS ARE INDICATED ON CODE PLANS.

ROOM FINISH SCHEDULE GENERAL NOTES

1. SEE DETAILS OF CONSTRUCTION FOR ABBREVIATIONS
2. IF ALL WALLS IN ROOM HAVE THE SAME FINISH, THE "N WALL-TYP" COLUMN WILL BE USED.
3. DISCREPANCIES BETWEEN THE ROOM FINISH SCHEDULE AND DRAWINGS SHALL BE REPORTED TO THE ARCHITECT FOR FINISH DETERMINATION.
5. REFER TO MATERIAL FINISH COLOR SCHEDULE FOR SPECIFIC FINISH TYPES AND COLORS.

ROOM FINISH SCHEDULE REMARKS

1. PROVIDE EPOXY PAINT UP TO 13'-2" ABOVE FINISH FLOOR
2. PAINT CEILING AND ALL EXPOSED STRUCTURE, PIPING, CONDUIT, MECHANICAL DUCTS AND VENTS.
3. SLOPE CONC. FLOOR TOWARDS EXTERIOR DOOR. SEE PLANS FOR FLOORSLOPING INFORMATION.

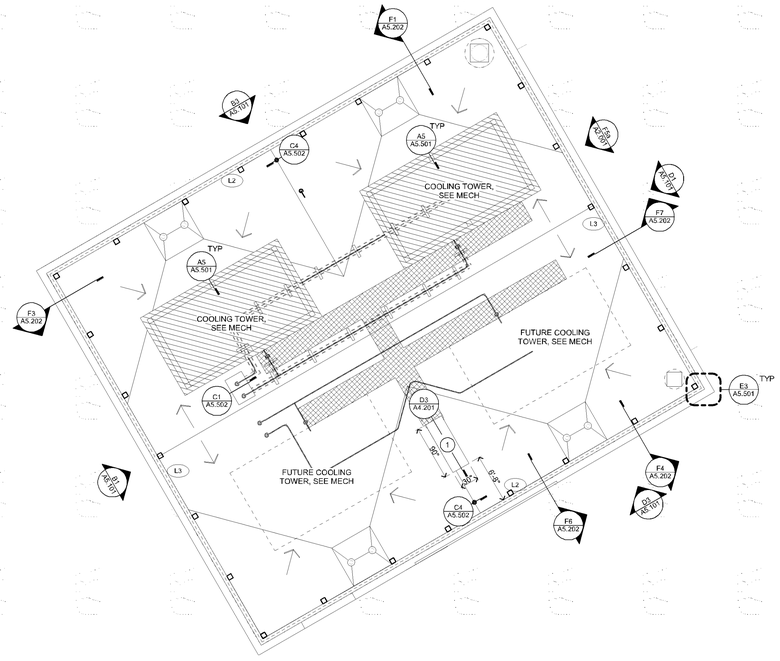
DOOR SCHEDULE REMARKS

1. PROVIDE FIRE NUMBER AT EXTERIOR DOORS DOOR NUMBER IN "__".
2.
3.

FLOOR PLAN KEY NOTES:

1. CONC HOUSEKEEPING PAD SEE DETAIL D2/A5.502, COORDINATE DIMENSIONS AND LOCATION WITH MECHANICAL AND ELECTRICAL
2. WATERPROOFING & DRAIN TILE TO EXTENTS SHOWN
3. BOLLARD SEE DETAIL F4/A5.502
4. WATERPROOFING AT BELOW GRADE TANK.
5. PROVIDE 8'-0" (W) x 9'-6" (H) KNOCKOUT PANEL FOR INSTALLATION OF FUTURE MECHANICAL EQUIPMENT. COORDINATE WITH MECH.

The rooftop units in other locations in the City generated noise complaints. Please provide information regarding the noise levels generated.



D5 ROOF PLAN

1/8" = 1'-0"

0 6' 12'

ROOF LEGEND

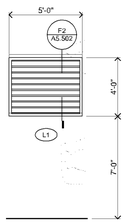
- ROOF DRAIN (R.D.)
- OVERFLOW DRAIN (O.R.D.)
- MECH HOOD
- ROOF EXHAUST
- EQUIPMENT CURB SUPPORTING PIPING OR CONDUIT. INSTALL MAXIMUM SPACING OF 8'-0" O.C.
- VENT STACK, PIPE OR CONDUIT SEE C4/A5.502
- COMBUSTION STACK
- CRICKET FOR POSITIVE DRAINAGE
- SLOPE OF TAPERED INSULATION
- DIAMOND CRICKET (SEE TYPICAL DETAIL)
- ROOF WALKWAY PADS

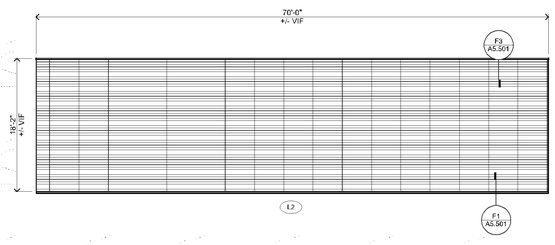
ROOF PLAN GENERAL NOTES

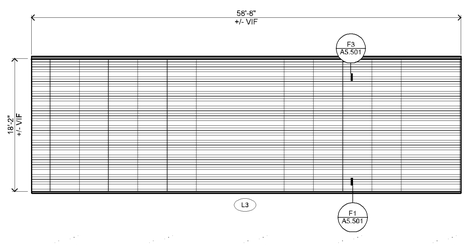
1. TAPERED ROOF INSULATION AND CRICKETS SHALL SLOPE AT 1/4" PER 1'-0". THE THICKNESS OF THE BASE INSULATION IS TO BE 5 1/2".
2. SHOP DRAWING DESIGN AND INSTALLATION OF TAPERED INSULATION MUST ACCOUNT FOR CAMBER IN STRUCTURE TO INSURE THAT THE ROOF DRAINS AS DESIGNED.
3. AT MECH. OPENINGS AND CURBS ON ROOF, PROVIDE CRICKETS AS REQUIRED FOR POSITIVE DRAINAGE OR CUT OPENINGS IN FREE-STANDING CURBS AS AN ALTERNATIVE.
4. MECHANICAL ITEM LOCATIONS ARE SHOWN FOR REFERENCE ONLY. REFER TO MECH. DRAWINGS FOR EXTENT OF MECH. EQUIP. AND SIZE AND LOCATION OF ALL ROOF PENETRATIONS.
5. ALL MECHANICAL AND ELECTRICAL ROOFTOP EQUIPMENT, PIPING, CONDUIT, ETC. TO BE PAINTED.
6. COORDINATE ROOF AND OVERFLOW DRAIN LOCATIONS WITH STRUCTURAL COMPONENTS TO AVOID LOCATING ROOF OR OVERFLOW DRAINS OVER TOP OF BEAMS OR JOISTS.
7. REFER TO EXTERIOR ELEVATIONS FOR LOCATION OF OVERFLOW SCUPPERS AND OUTFLOWS.

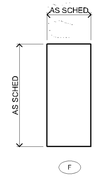
ROOF PLAN KEY NOTES:

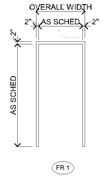
1. 30" X 90" ROOF HATCH
2. UNUSED
3. UNUSED











CD ESTIMATE SET

NOT FOR CONSTRUCTION

A

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wold.com | 651 227 7773

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Paul Aplikowski
License Number: **42737** Date: **Issue Date**

Revisions		
Description	Date	Num

Comm: **202115**
Date: **03/31/21**
Drawn: **SH**
Check: **PT**

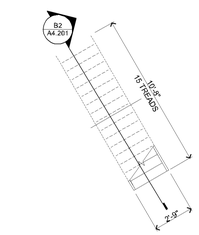
North

MAIN LEVEL FLOOR PLAN, ROOF PLAN

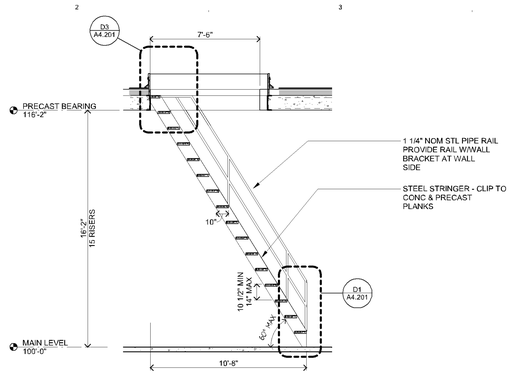
Scale: **As indicated**

A2.001

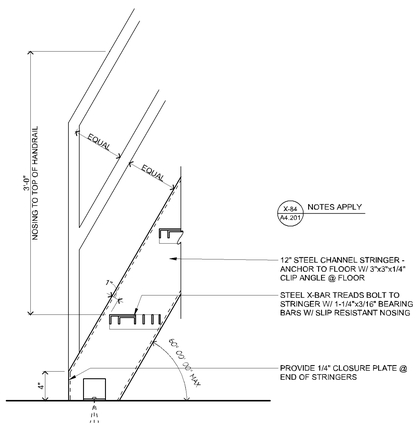
MN



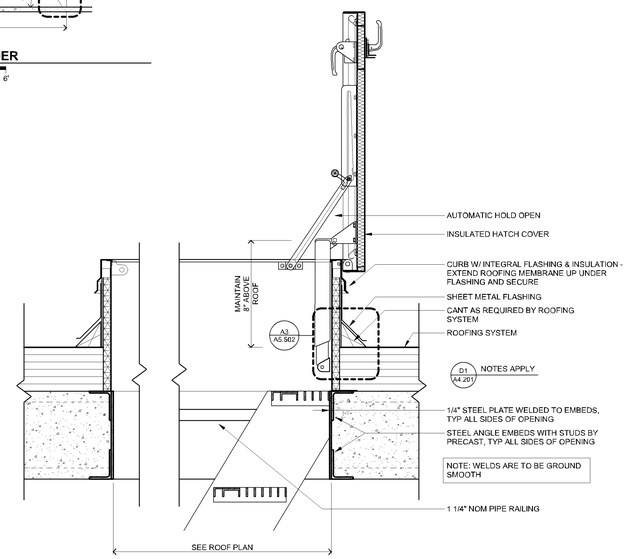
B1 SHIP'S LADDER PLAN
1/4" = 1'-0"



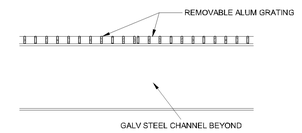
B2 SECTION AT SHIP'S LADDER
1/4" = 1'-0"



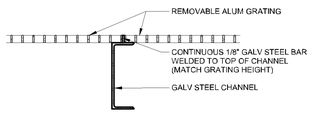
D1 FLOOR AT SHIPS LADDER
1 1/2" = 1'-0"



D3 LANDING AT SHIPS LADDER & HATCH
1 1/2" = 1'-0"



A6 CHILLER PLATFORM SECTION
1 1/2" = 1'-0"



A7 CHILLER PLATFORM SECTION
1 1/2" = 1'-0"

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Description	Date	Num

Comm: 202115
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Check: Checker
North

DETAILS - VERTICAL CIRCULATION

Scale: As indicated

CD ESTIMATE SET
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A4.201

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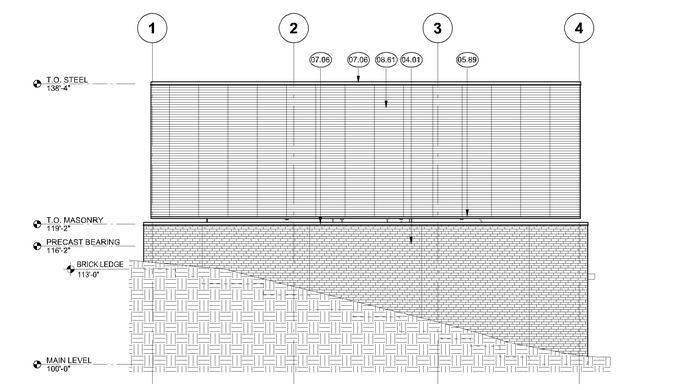
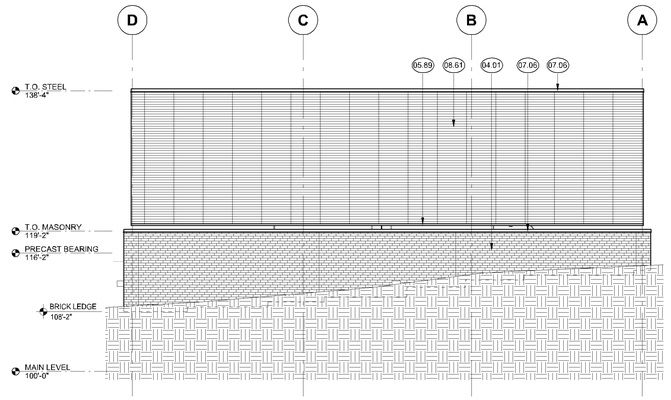
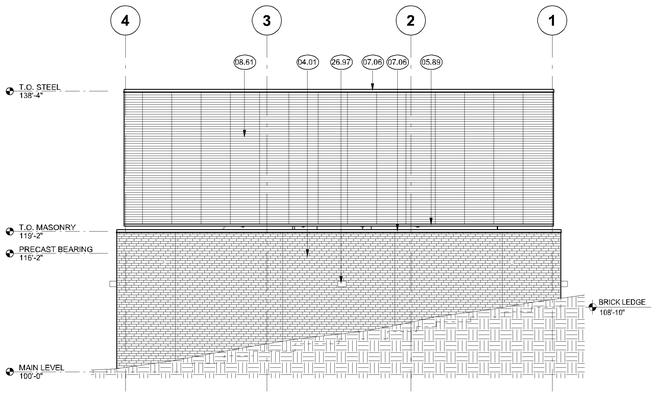
MN



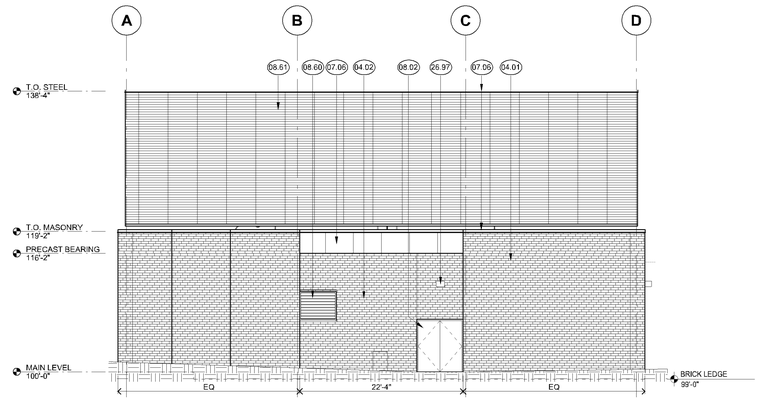
B1 **WEST ELEVATION**
1/8" = 1'-0"
0 6' 12'



B3 **NORTH ELEVATION**
1/8" = 1'-0"
0 6' 12'



D1 **EAST ELEVATION**
1/8" = 1'-0"
0 6' 12'



D3 **SOUTH ELEVATION**
1/8" = 1'-0"
0 6' 12'

MATERIALS KEY	
KEY	MATERIAL
04.01	BRICK 1
04.02	BRICK 2
05.89	STEEL TUBE - PAINTED
07.06	PREFINISHED ALUMINUM PANEL
08.02	HOLLOW METAL DOOR - PAINTED
08.60	ANODIZED ALUMINUM LOUVER
08.61	PREFINISHED SCREEN LOUVER
26.97	EXTERIOR LIGHTING (SEE ELEC.)

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EXTERIOR ELEVATIONS

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

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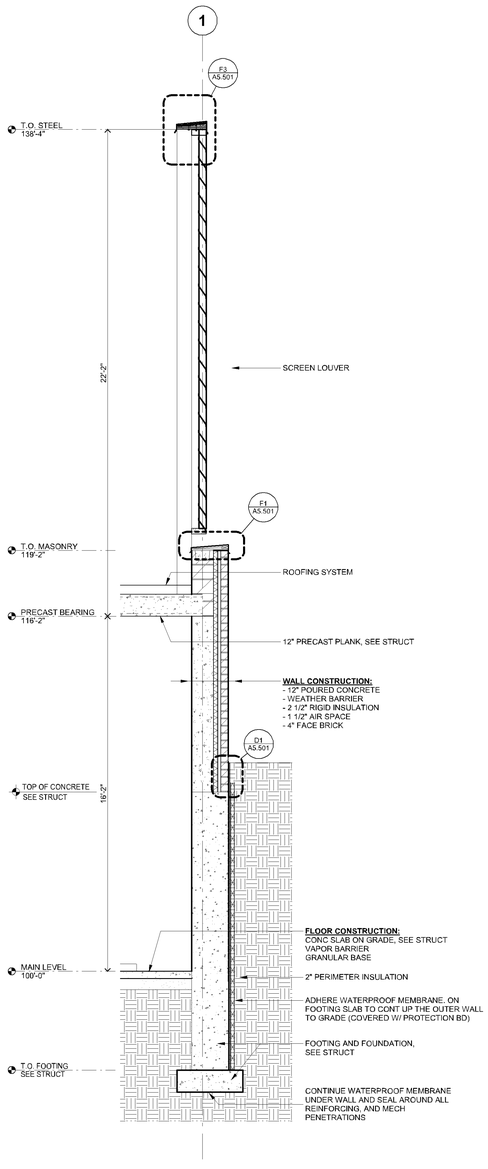
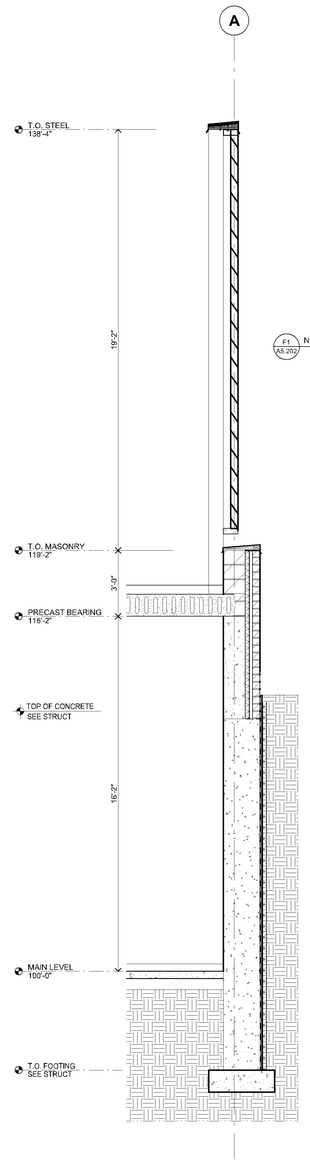
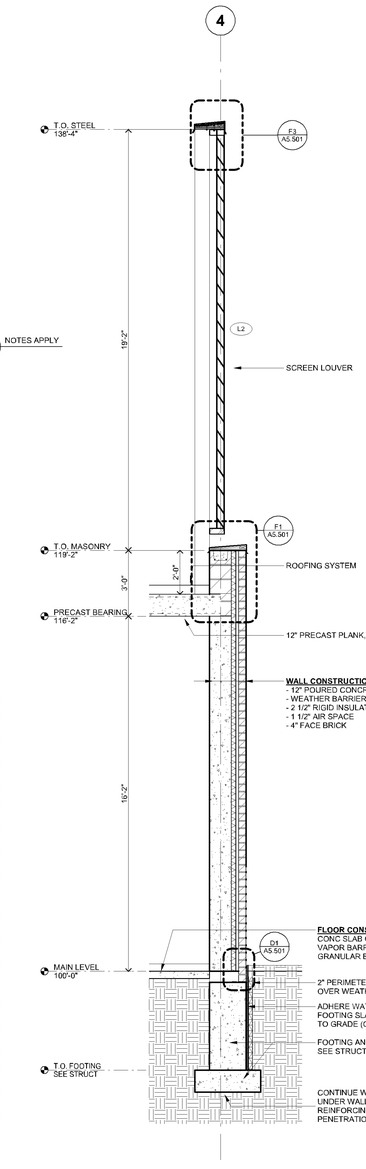
A5.101

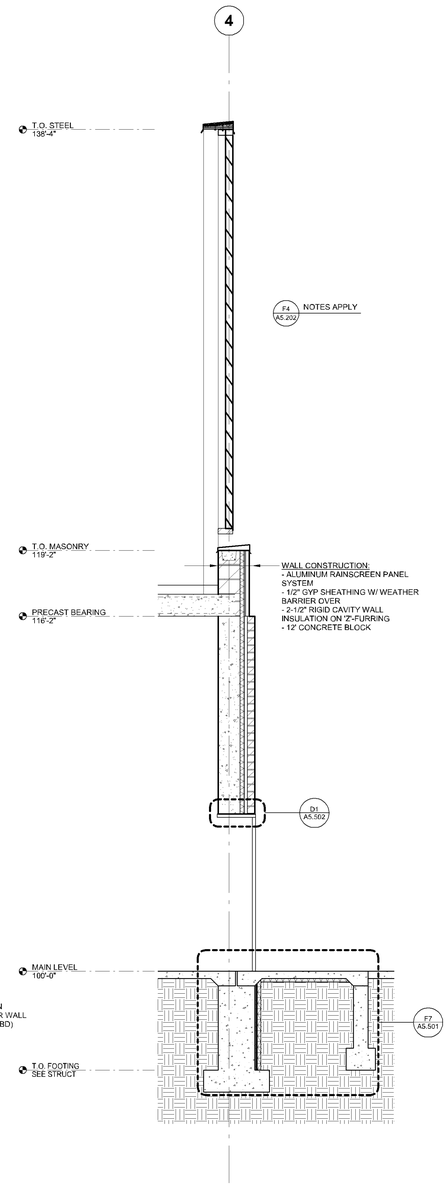
A

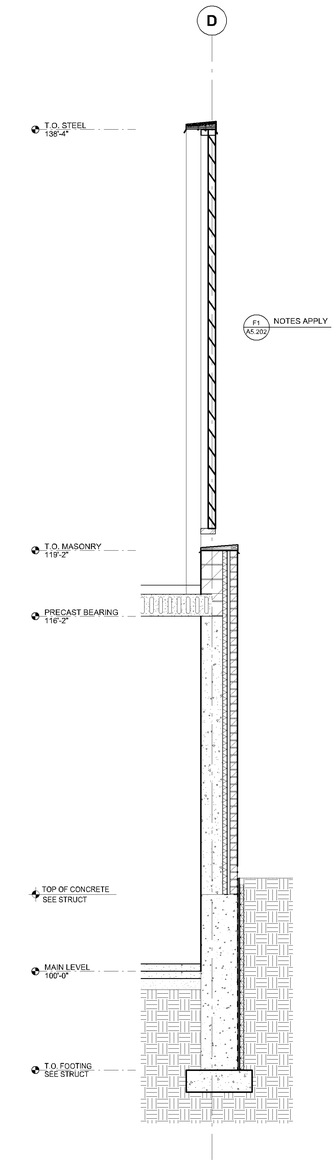
MN











A

F1 **WALL SECTION AT NORTH WALL** 3/8" = 1'-0"

F3 **WALL SECTION AT WEST WALL** 3/8" = 1'-0"

F4 **WALL SECTION AT SOUTH WALL** 3/8" = 1'-0"

F6 **WALL SECTION AT SOUTH WALL DOOR** 3/8" = 1'-0"

F7 **WALL SECTION AT EAST WALL** 3/8" = 1'-0"

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed **ARCHITECT** under the laws of the State of **Minnesota**

Paul Aplikowski
License Number: **42737** Date: **Issue Date**

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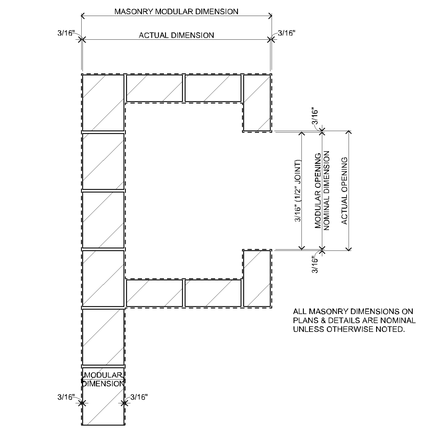
WALL SECTIONS

Scale: **3/8" = 1'-0"**

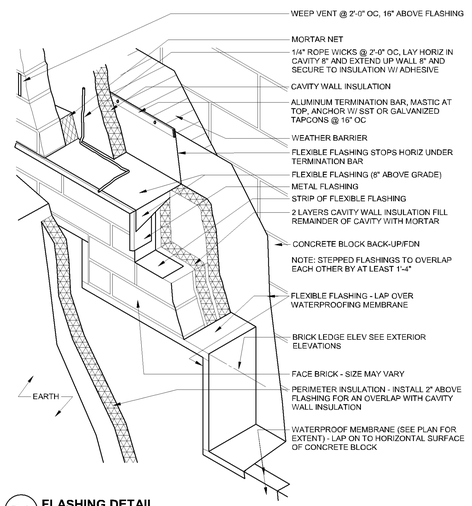
A5.202

MN

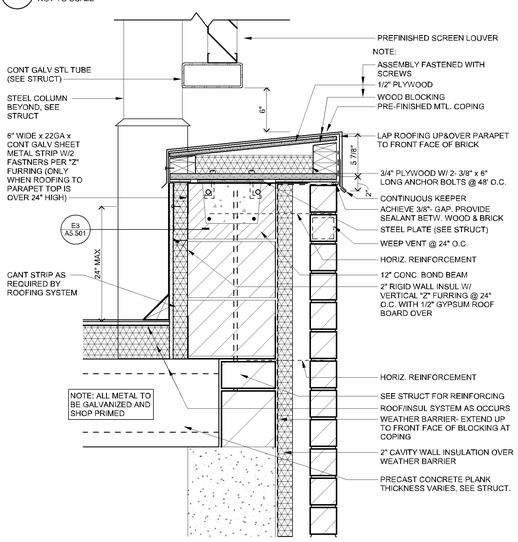


ALL MASONRY DIMENSIONS ON PLANS & DETAILS ARE NOMINAL UNLESS OTHERWISE NOTED.

B1 MASONRY DIMENSIONING
3/4" = 1'-0"

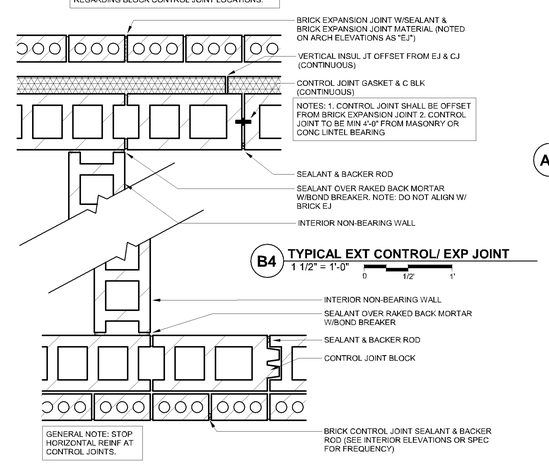


D1 FLASHING DETAIL
NOT TO SCALE



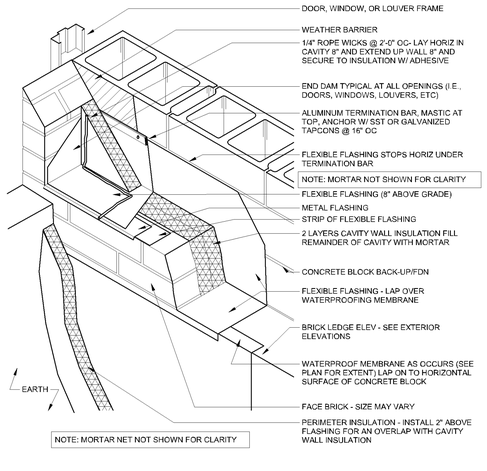
F1 PARAPET @ CHILLER
1 1/2" = 1'-0"

NOTE: SEE STRUCTURAL DRAWINGS FOR NOTES REGARDING BLOCK CONTROL JOINT LOCATIONS.

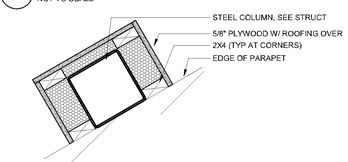


B4 TYPICAL EXT CONTROL/ EXP JOINT
1 1/2" = 1'-0"

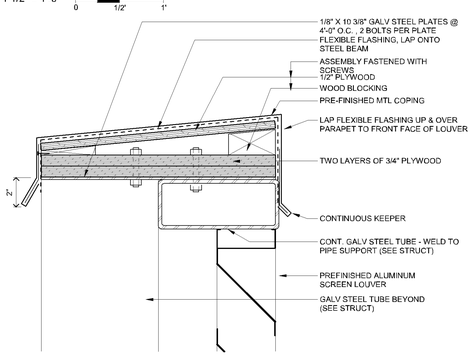
B3 TYPICAL INTERIOR CONTROL JOINT
1 1/2" = 1'-0"



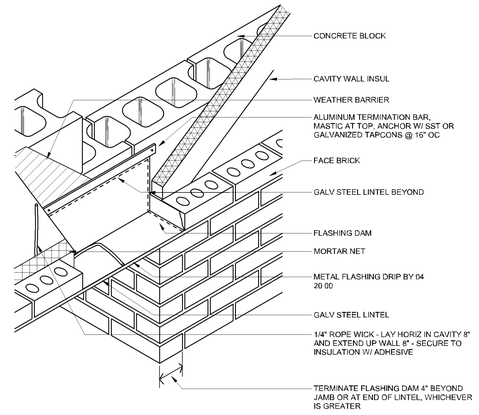
D3 FLASHING DETAIL
NOT TO SCALE



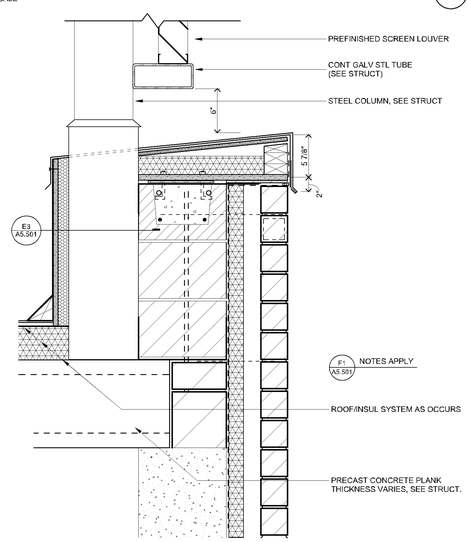
E3 PLAN DETAIL AT COLUMN
1 1/2" = 1'-0"



F3 SECTION AT EQUIPMENT SCREEN
3" = 1'-0"

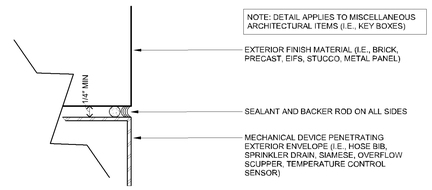


D5 TYPICAL FLASHING TERMINATION
NOT TO SCALE

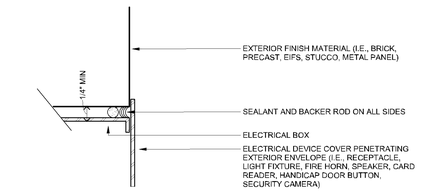


F5 PARAPET @ SCREEN LOUVER SUPPORT
1 1/2" = 1'-0"

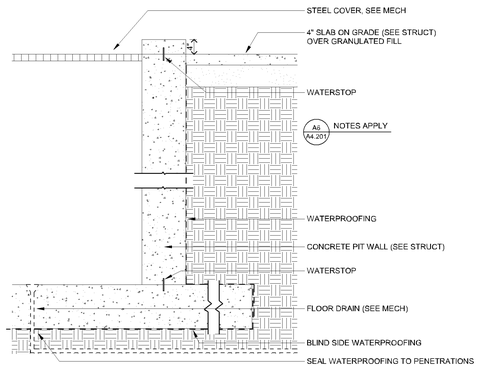
NOTE: DETAIL APPLIES TO MISCELLANEOUS ARCHITECTURAL ITEMS (I.E., KEY BOXES)



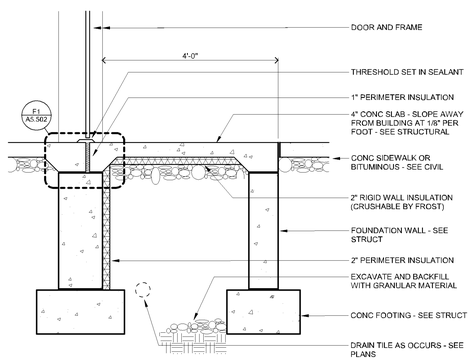
A7 SECTION AT TYP MECH DEVICE
6" = 1'-0"



B7 SECTION AT TYP ELEC DEVICE
6" = 1'-0"



D7 DETAIL AT SUMP PIT
3/4" = 1'-0"



F7 SECTION AT STOOP - TYPICAL
3/4" = 1'-0"

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed **ARCHITECT** under the laws of the State of **Minnesota**

Paul Aplikowski
License Number: **42737** Date: **Issue Date**

Revisions		
Description	Date	Num

Comm: **202115**
Date: **03/31/21**
Drawn: **SH**
Check: **PT**

DETAILS - EXTERIOR

Scale: **As indicated**

CD ESTIMATE SET
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A5.501

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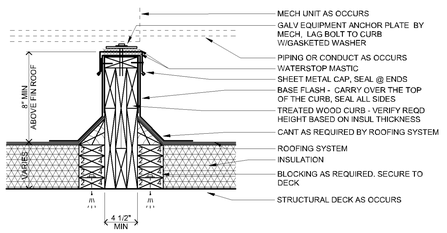
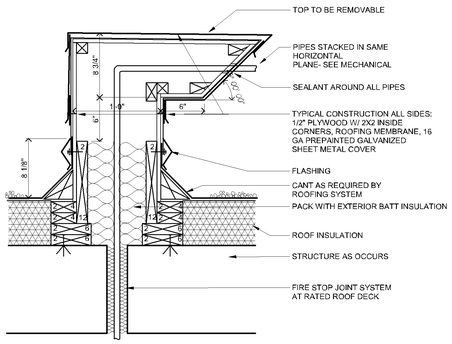
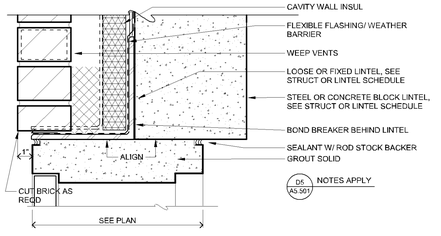


A1 EQUIPMENT CURB
1 1/2" = 1'-0"

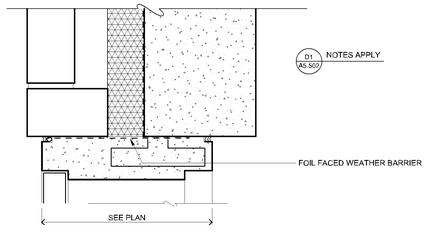
NOTE: WIDTH OF BOX TO BE 1'-0" FOR ONE PIPE PLUS 4" EACH ADDITIONAL PIPE



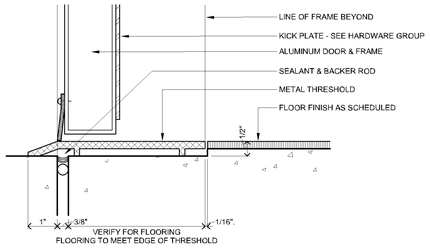
C1 PIPING BOX
1 1/2" = 1'-0"



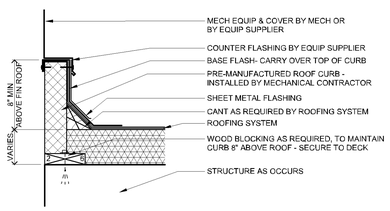
D1 EXT HM HEAD AT MASONRY
3" = 1'-0"



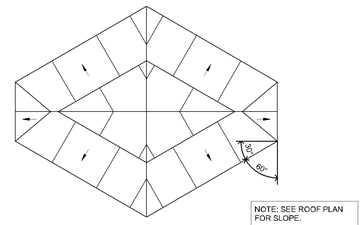
E1 EXT HM JAMB AT MASONRY
3" = 1'-0"



F1 MAIN ENTRY THRESHOLD
6" = 1'-0"

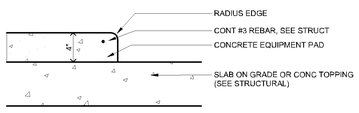


A3 PENETRATION CURB
1 1/2" = 1'-0"

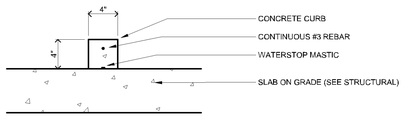


NOTE: SEE ROOF PLAN FOR SLOPE.

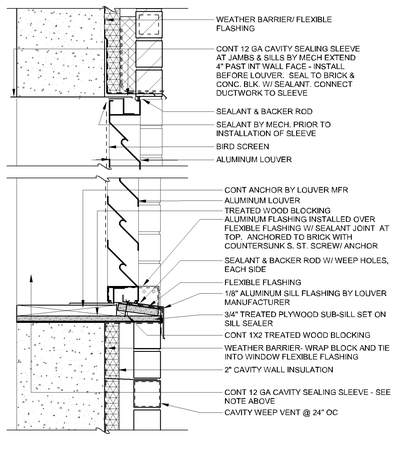
C3 ROOF CRICKET PLAN VIEW
1 1/2" = 1'-0"



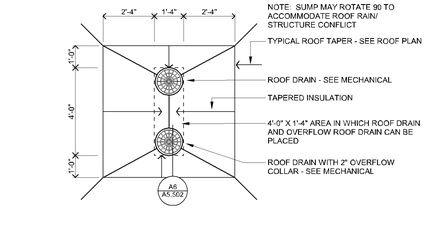
D2 HOUSEKEEPING PAD
1 1/2" = 1'-0"



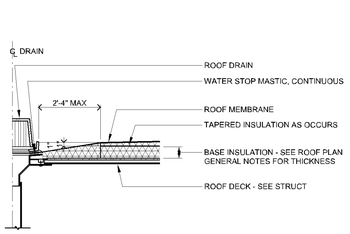
D2a MECHANICAL CURB
1 1/2" = 1'-0"



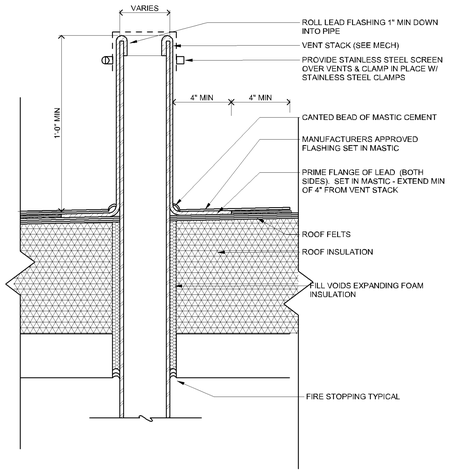
F2 WALL SECTION AT FRESH AIR LOUVER
1 1/2" = 1'-0"



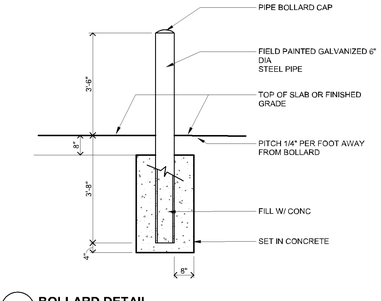
A4 ROOF DRAIN TYPICAL SUMP PLAN
3/8" = 1'-0"



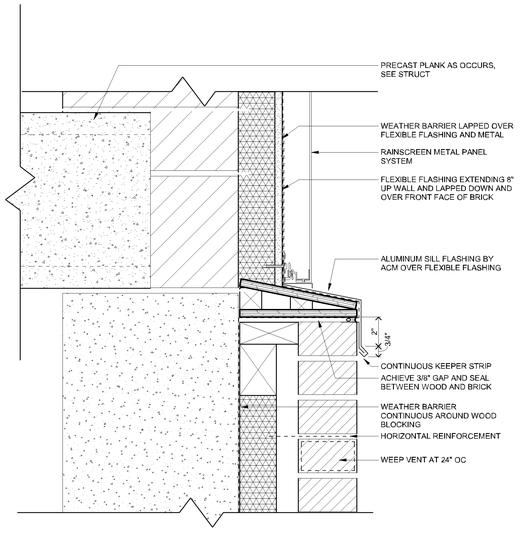
A6 ROOF DRAIN SUMP SECTION
3/4" = 1'-0"



C4 BUILT-UP ROOF VENT
3" = 1'-0"



F4 BOLLARD DETAIL
1/2" = 1'-0"



F6 SECTION AT TRANSITION FROM BRICK TO MTL PANEL
3" = 1'-0"

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Paul Aplikowski
License Number: 42737 Date: Issue Date

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DETAILS - EXTERIOR

Scale: As indicated

A5.502

MN

STRUCTURAL ABBREVIATIONS

ADDN'L	Additional
ALT	Alternate
ANCH	Anchor
AB	Anchor Bolt
&	And
L	Angle
ARCH	Architect or Architectural
@	At
BSMT	Basement
BM	Beam
BRG	Bearing
BNT	Bent
BTWN or BET	Between
BLK	Block
BB	Bond Beam / Lintel Beam
BOT or BTM	Bottom
BRKT	Bracket
BLDG	Building
CANT	Cantilever
CLG	Ceiling
CTR	Center
CL	Center Line
CTRD	Centered
C	Channel
CLR	Clear
COL	Column
COMP	Composite
CONC	Concrete
CMU	Concrete Masonry Unit
COND	Condition
CONN	Connection
CONST	Construction
CONT	Continuous
CJ	Control Joint
CONTR	Contractor
DL	Dead Load
DEFL	Deflection
DBA	Deformed Bar Anchor
DTL or DET	Detail
DIAG	Diagonal
DIA	Diameter
DIM	Dimension
DWL(S)	Dowel(s)
DWG(S) or DRWG	Drawing(s)
EA	Each
EF	Each Face
EW	Each Way
E	East
E-W	East - West
Fe	Effective Force (P-T.)
ELEC	Electrical
EL	Elevation
ELEV	Elevator
EQ	Equal
EXP	Expansion
EJ or EXP JT	Expansion Joint
EXT	Extend or Exterior
FF	Far Face
FV	Field Verify
FLG	Flange
FLR	Floor
FT	Foot
FTG	Footing
FOUND or FDN	Foundation
GALV	Galvanized
GA	Gauge
GC	General Contractor
GL or GLU-LAM	Glue Laminated Wood
GB	Grade Beam
H	H Shaped Column
HS	Hsaped Stud(s)
HP	High Point
HSS	Hollow Structural Shape
HK	Hook
HORIZ	Horizontal
IN	Inch
INFO	Information
ID	Inside Diameter
IF	Inside Face
INSUL	Insulation
INT	Interior
JT	Joint
JST(S)	Joist(s)
KIP	1 Kip = 1,000 lbs
K	Kips
K/FT	Kips per Foot
KSF	Kips per Square Foot
KSI	Kips per Square Inch
LSL	Laminated Strand Lumber
LVL	Laminated Veneer Lumber
LW	Light Weight
L	Lintel
LL	Live Load
LLH	Long Leg Horizontal
LLV	Long Leg Vertical
LSH	Long Slice Horizontal
LSV	Long Slice Vertical
LP	Low Point
MFG	Manufacturer / Manufacturing
MAS	Masonry
M/O	Masonry Opening
MAT	Material
MAX	Maximum
MECH	Mechanical
MEP	Mechanical, Electrical, and Plumbing
MBR	Member
MEZZ	Mezzanine
MPH	Miles per Hour
MIN	Minimum
MISC	Miscellaneous
MC	Miscellaneous Channel
M	Moment
NF	Near Face
NOM	Nominal
N	North
N-S	North - South
NTS	Not To Scale
NO or #	Number
OC	On Center
OPNG or OPG	Opening
OPP	Opposite
OD	Outside Diameter
OF	Outside Face
PSL	Parallel Strand Lumber
/	Per
PLK	Plank
PL	Plate
PT	Post Tension(ing)
#	Pound
PSF	Pound per Square Foot
PSI	Pound per Square Inch
PCF	Pounds per Cubic Foot
PC	Precast
RFG	Reinforcing
REINF	Reinforcing or Rainforce
REBAR	Reinforcing Bar
REQ'D	Required
REV	Reverse
RD	Roof Drain
SCHED or SCH	Schedule
SEC	Section
V	Shear
SHT	Sheet
SIM	Similar
SOG	Slab on Grade
S	South
SPS	Spaces
SPEC	Specification
SQ	Square
STAGG	Stagger
STD	Standard
STL	Steel
STRUCT or STR	Structure
SUPP	Support
TEMP	Temporary or Temperature
THRU	Through
T&B	Top and Bottom
TOB	Top of Beam
T/ or TOP/	Top of Element
TOF	Top of Footing
TOS	Top of Slab
TYP	Typical
UN	Unless Noted
UNO	Unless Noted Otherwise
VER	Verify
VIF	Verify in Field
VERT	Vertical
WWF	Welded Wire Fabric
W	West or Wide Flange
WND	Window
W/	With
W/O	Without
WD	Wood
WP	Workpoint

STRUCTURAL SYMBOLS

- DIMENSIONAL LUMBER
- WOOD BLOCKING
- STEEL OR METAL
- CONCRETE BLOCK - HOLLOW OR SOLID
- FACE OR COMMON BRICK
- RIGID INSULATION
- BATT OR BLANKET INSULATION
- SHEATHING
- EARTH, FILL OR BACKFILL
- SAND OR GROUT
- CONCRETE
- STONE
- EXISTING ELEMENT - MATERIAL VARIES
- BP1 — BEARING PLATE MARK - SEE SCHEDULE
- SC1 CC1 PC1 — COLUMN MARK - STEEL, CONCRETE, OR PRECAST - SEE SCHEDULE
- XXX PLF — DESIGN DIAPHRAGM SHEAR FORCE TO BE RESISTED BY PRECAST WALL PANEL OR COLD-FORMED STEEL STUD SHEAR WALL. SEE PLAN NOTES FOR LOAD TYPE.
- DP1 — DRILLED PIER MARK - SEE SCHEDULE
- EP1 — EMBED PLATE MARK - SEE SCHEDULE
- CF4-3 — FOOTING MARK FOR COLUMNS - SEE SCHEDULE
- WF2-3 — FOOTING MARK FOR WALLS - SEE SCHEDULE
- 1 — KEY NOTES - SPECIFIC NOTES KEYED TO AN ELEMENT OR AREA, SEE SCHEDULE
- L1 — LINTEL MARK - SEE SCHEDULE
- MP1 CP1 — PIER MARK - MASONRY OR CONCRETE - SEE SCHEDULE
- PC1 — PILE CAP MARK - SEE SCHEDULE
- 1 — REVISION MARK - INDICATES A CHANGE AFTER CONTRACT DOCUMENT ISSUE
- SW1 — SHEAR WALL MARK - SEE SCHEDULE
- SR1 — STUD RAIL MARK - SEE SCHEDULE
- MW1 CW1 — WALL REINFORCING MARK - MASONRY OR CONCRETE - SEE SCHEDULE
- WW1 — STRUCTURAL WOOD WALL MARK - SEE SCHEDULE
- ELEVATION CHANGE (STEPPED OR SLOPED)
- A — GRID BUBBLE
- X / XXX — SECTION NUMBER / DRAWING NUMBER WHERE SECTION IS FOUND
- X / XXX — DETAIL NUMBER / DRAWING NUMBER WHERE DETAIL IS FOUND
- X / XXX — ELEVATION NUMBER / DRAWING NUMBER WHERE ELEVATION IS FOUND
- MATCHLINE
- EXISTING BUILDING LINE
- HIDDEN EXISTING BUILDING LINE
- BREAK LINE
- DIRECTION OF SLOPE
- STEEL BEAM SPLICE
- STEEL BEAM CONTINUOUS OVER SUPPORT
- MOMENT CONNECTION FOR STEEL BEAMS
- LOCATION OF BEAM BRACE
- SPAN OF STRUCTURAL ELEMENT
- HIGH END OF BRACE / LOW END OF BRACE — LOCATION OF BRACED FRAME
- SLAB REINFORCING - TOP BARS
- SLAB REINFORCING - BOTTOM BARS
- DIMENSION LINES
- MATERIAL LIMIT LINES
- MATERIAL NOT INCLUDED IN LIMIT LINES
- S — FOOTING STEP

STRUCTURAL NOTES

These notes are provided for typical conditions. See plans and details for specific requirements in other areas.

DEFERRED STRUCTURAL SUBMITTALS
Deferred submittals are those portions of the design which are not submitted at the time of permit application but are to be submitted to the building official prior to installation. Deferred submittals are governed by Minnesota State Building Code section 1330.0133. The following items are to be issued as deferred submittals:
Precast concrete units

For all deferred structural submittals, include design and calculations prepared and certified by an engineer licensed to practice in the state in which the project is located as part of the submittal documents. See specification for additional shop drawing requirements. Provide deferred submittals a minimum of 30 days prior to installation, and after contractor's review, to the architect and structural engineer for review for general conformance to the contract documents. After architect's and structural engineer's review, submit to building official for review and approval. Do not install deferred submittal items until submittal documents have been reviewed and approved by the building official.

Refer to architectural, civil, mechanical, and electrical drawings for additional deferred submittal components.

COORDINATION – ARCHITECTURAL, MECHANICAL AND ELECTRICAL ITEMS
Verify all depressions, dimensions, elevations, openings, equipment supports, and details and coordinate by reference to architectural, mechanical, and electrical drawings.

OPENINGS
Verify size and location of all openings with architectural, mechanical, and electrical drawings. Structural drawings do not necessarily show all openings.
Place openings in floor and roof not shown on structural drawings between structural members. Notify Structural Engineer before openings larger than 12" in any dimension are added.
Obtain prior approval from Structural Engineer before making any openings through structural members if the openings are not shown on the structural drawings.

DESIGN CODES AND STANDARDS
International Building Code (IBC) 2018 – As amended by the *Minnesota State Building Code 2020*
American Society of Civil Engineers (ASCE) 7-16 – *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*
American Concrete Institute (ACI) 318-14 – *Building Code Requirements for Structural Concrete*
The Masonry Society (TMS) 402/602-2016 – *Building Code Requirements and Specification for Masonry Structures*
American Institute of Steel Construction 360-16 – *Specification for Structural Steel Buildings* (AISC 360)
American Institute of Steel Construction – *Steel Construction Manual* – Fifteenth Edition (AISC 15th)
American Welding Society D1.1-2015 – *Structural Welding Code – Steel* and D1.3-2008 – *Structural Welding Code – Sheet Steel* as modified by AISC Specifications

DESIGN STRESSES
Reinforcing Steel (Fy):
60,000 psi (A615, Grade 60)
Concrete (Fc) (28-day compressive strength)
4,500 psi for exterior concrete
4,000 psi unless noted
4,000 psi for interior slab on grade
3,000 psi for footings
3,000 psi (pre-mixed grout) for masonry cores, lintels, and bond beams
Masonry (28-day compressive strength)
2,000 psi prism strength (f'm)
2,000 psi CMU compressive strength
3,000 psi grout strength
Structural Steel (Fy)
50,000 psi (A992 or A572 Grade 50) for W shapes
36,000 psi (A36) for bars, plates, angles and other shapes
50,000 psi (A500, Grade C) for rectangular structural tubing
46,000 psi (A500, Grade C) for round structural tubing
35,000 psi (A53, Type E or S, Grade B) for pipes

DESIGN LOADS
Roof Loads:
Roof Dead Load: 35 psf superimposed
Roof Snow Load Parameters
Ground Snow Load: 53 psf
Exposure Factor (Ce): 1.0
Occupancy Importance Factor: 1.0
Thermal Factor (Ct): 1.0
Flat-Roof Snow Load (Pf): 35 psf
Snow Drift Loads: In accordance with ASCE 7 Chapter 7.
Wind Loads:
ASCE 7 Directional Procedure Parameters:
Risk Category: II
Exposure: C
Basic design wind speed: 139 MPH (3 second gust)
Allowable stress design wind speed: 85 MPH
Wind Directionality Factor (Kd): 0.85
Topographic Factor (Kzt): 1.0
Ground Elevation Factor (Ke): 1.0
Internal Pressure Coefficient: ((GCpi) +/-0.18
Components and Cladding Wind Loads (ultimate):
Roof Uplift:
Interior Zones: xxx psf
Edge Zones: xxx psf (within __'-__" of edge, away from corner)
Corner Zones: xxx psf (within __'-__" of corner)
Walls:
Interior Zones: xxx psf
Corner Zones: xxx psf (within __'-__" of corner)
Seismic Loads
Seismic design not required per MSBC 1305.0311 Subparagraph 4.

TEMPORARY BRACING
This structure is a non-self-supporting steel frame that requires interaction with slabs, steel deck, and masonry or concrete walls to provide the required lateral stability.
Provide required temporary bracing for structural steel until permanent bracing, slabs, steel deck, and walls are in place.
Provide temporary bracing for all walls (concrete, masonry, cold formed steel, or wood) until they are of adequate design strength and are properly anchored in final form.

GEOTECHNICAL INFORMATION
The foundation design is based on the recommendations contained in Geotechnical Report number B2130979 prepared by Braun Intertec and dated xxx. Allowable foundation pressures are to be verified in field by a licensed professional geotechnical engineer. Foundation design requires the use of imported sand backfill outlined in the geotechnical report. Foundation design parameters are as follows:
Net soil bearing capacity
Strip footings: 4,000 psf
Spread footings: 4,000 psf
Lateral Soil Pressure (equivalent fluid pressure)
Lateral pressure on foundation walls: 55 psf/ft
Lateral pressure on cantilever retaining walls: 37 psf/ft
Passive soil pressure: 390 psf/ft
Coefficient of friction: 0.40

BACKFILLING
Backfill and materials behind foundation and retaining walls shall be as outlined in the Geotechnical Report.
Do not backfill or compact earth against walls retaining earth until supporting slabs have reached 75% of their design strength or adequate bracing is in place. Provide bracing designed and certified by an Engineer licensed in the state in which the project is located. Submit design and calculations to Structural Engineer for review only.
Backfill evenly on both sides of foundation walls to prevent overturning or lateral wall movement.

CONCRETE REINFORCING GENERAL
Provide standard hooks where hook lengths are not specified.
See sheet S6.201 for required reinforcing splice lengths.
Provide epoxy coated reinforcing for all concrete exposed to weather such as retaining walls, and exterior walls, piers, columns, slabs, and paving. Epoxy coated reinforcing is not required for building foundation walls unless specifically noted.

CONCRETE COVER ON REINFORCING

Footings:	3" clear bottom and sides
	2" clear top
Walls:	1-1/2" clear outside face and surfaces exposed to earth or weather (2" for #6 bars or larger)
	3/4" clear inside face
Piers:	1-1/2" clear to ties or stirrups
Slab on Grade:	Place reinforcing in upper third of slab
Masonry Walls & Columns:	centered in cell
	1/2" from inside face of cell if not centered
Masonry Lintels/Bond Bms:	Place bottom reinforcing within 4" of bottom of lintel

FOOTINGS
For wall footings, provide 32 bar dia. lap at reinforcing splices and full crossing lap at intersections.
Unless otherwise noted, center wall footings under walls and column footings under columns.
Footing elevations shown on plan are to top of footing (TOF).
Hook wall and column dowels at 3" clear bottom of footing.

CONCRETE SLABS ON GRADE
See details 4/S5.201 and 1/1S5.201 for control/construction joints.
If control joints are not shown on plan, place control/construction joints at columns and provide additional joints to meet the spacings indicated below:
Exterior slabs, 17'-0" oc maximum
Interior slabs, 12'-0" oc maximum
"L" shaped panels and rectangular panels (with length to width ratio greater than 1.5) are not allowed.
All control/construction joints must be continuous and not staggered or offset.

POURED CONCRETE WALLS
See detail 6/S5.201 for horizontal reinforcing at intersecting walls.
All openings 12" or larger, in walls shall have:
1 - #4 x 4'-0" each face diagonal at each corner
1 - #5 each face, each side of opening, extend 2'-0" beyond opening
Wall reinforcing is continuous through columns, unless detailed otherwise.
See detail 5/S5.201 for typical vertical control/construction joints.

PRECAST CONCRETE UNITS
The design of all precast concrete units shall conform to ACI 318.
Precast units shall sustain the superimposed loads indicated on the plans in addition to all other dead loads.
Submit complete shop drawings to Architect/Engineer for review, showing the erection plan, all bearing conditions, and anchorage details
Design of precast units and anchorages shall be prepared by an engineer licensed in the state in which the project is located. Design loads used shall be indicated on the shop drawings.
Provide necessary headers at floor or wall openings.
Upon installation, plank shall be essentially past the effects of deformation due to creep and shall have camber not over 1/360 of the span. Camber shall be uniform from plank to plank with similar spans and loading.
Place openings not shown on plans between webs in precast plank units. Verify acceptability with precast supplier.
For precast bearing on masonry construction, design connection to limit bearing stress on masonry to 0.33f'm.
For precast bearing on concrete construction, design connection to limit bearing stress on concrete in accordance with ACI 318.

REINFORCED CONCRETE BLOCK WALLS
Where one bar is required in a single core, place in center, unless noted otherwise.
Where two bars are required in a single core, place one near each face.
Lap horizontal bond beam reinforcing 48 bar diameters at splices. See detail 2/S5.201 for corner bars.
Extend vertical reinforcing to 2" clear top of wall.
Fill block core at vertical reinforcing (8" minimum length along wall) with concrete or grout. Vibrate in place. Rodding and puddling are not allowed.
For high-lift grouting, maximum grout pour height is 4'-8" for plain masonry units or 12 feet for open core block. Provide cleanouts if pour height exceeds 5'-4". Maximum grout lift height within a grout pour is 5'-4". See Specification 042731 for grouting requirements if low-lift grouting or plain shapes are used.
Provide horizontal joint reinforcing at 16"oc.

STRUCTURAL STEEL
Structural steel fabrication and construction shall conform to the AISC "Manual of Steel Construction" and the AISC "Code of Standard Practice for Steel Buildings and Bridges".
Galvanize structural steel exposed to weather and brick support angles in exterior walls according to ASTM A123.
Do not field cut or alter structural members without approval of the Structural Engineer.

LATERAL LOAD RESISTING SYSTEM FOR STRUCTURAL STEEL BUILDINGS
The following elements comprise the primary lateral load resisting system:
Roof Diaphragm: Precast concrete plank.
Collector elements/bracing struts: None.
Lateral load resisting system: Concrete shear walls.

STRUCTURAL STEEL CONNECTIONS
Typically, provide welded or bolted shop connections and bolted field connections.
Typical bolts are 3/4" Ø A325-N bolts in standard or short slotted holes.
Provide shear connections according to the standard connection schedules on sheet S6.201 and as follows:
Use double angles for all girders and for all beams W24 and larger.
Double angle connection or single plate connection may be used for other beams.
For skewed girder connections, use a single plate connection with a capacity equal to or greater than the double angle connection for that beam size.
Beams that connect to a column or wall on either end and support the load from another beam are considered girders. Beams supporting precast plank floors are considered girders.
Beams requiring a non-typical connection will be noted on the drawings as DA-X for double angle connections or SP-X for single plate connections (where X denotes the number of bolt rows in the connection).
Design bracing, moment, and other connections not detailed on the drawings for the loads indicated. Submit calculations for these connections.

SHEET INDEX

REQUIRED STRUCTURAL SPECIAL INSPECTIONS

IN ADDITION TO THE REGULAR INSPECTIONS, THE FOLLOWING STRUCTURAL ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE INTERNATIONAL BUILDING CODE. SEE SPECIFICATION SECTION 014533 AND MATERIAL SPECIFICATION SECTIONS FOR SPECIFIC REQUIREMENTS. CONSTRUCTION NOT ASSOCIATED WITH THE STRUCTURAL SYSTEM MAY REQUIRE SPECIAL INSPECTION BUT IS NOT LISTED HERE.

ITEM	REQUIRED?	REMARKS
1. Soils compliance prior to foundation construction	YES	Reference IBC 1705.6
2. Column footings	NO	Building is 3 stories or less in height
3. Wall footings	NO	Footing and pier concrete designed for f'c 2500 psi. Building is 3 stories or less in height
4. Structural concrete	YES	Reference IBC table 1705.3 and MSBC 1305.1705
5. Reinforcing steel	YES	Reference IBC table 1705.3
6. Bolts installed in concrete	YES	Reference IBC table 1705.3
7. Post-installed anchors	YES	Reference IBC table 1705.3
8. Structural steel fabrication	YES	May be performed by fabricator if fabricator is AISC certified. Reference IBC 1705.2 and AISC 360 Chapter N
9. Structural welding and high strength bolting	YES	Reference IBC 1705.2.1 and AISC 360 Chapter N
10. Precast concrete fabrication	NO	Precast manufacturing plant shall be certified by the PCI Plant Certification Program Categories C3A and C4A. Submit certification of compliance to the building official in accordance with IBC 1704.2.5.1
11. Precast concrete erection	YES	Reference IBC 1705.3
12. Structural masonry	YES	Reference IBC 1705.4, TMS 402/602, and MSBC 1305.1705

CD ESTIMATE SET
NOT FOR CONSTRUCTION

Jefferson-Olson Mechanical Plant
4001 West 102nd Street
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BKBM Job No. 20414.00

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed **ENGINEER** under the laws of the State of **Minnesota**

License Number: ** Date: **

Revisions		
Description	Date	Num

Comm: **202115**
Date: **03/19/21**
Drawn: **JDJ**
Check: **TLB**

STRUCTURAL TITLE SHEET

S0.000

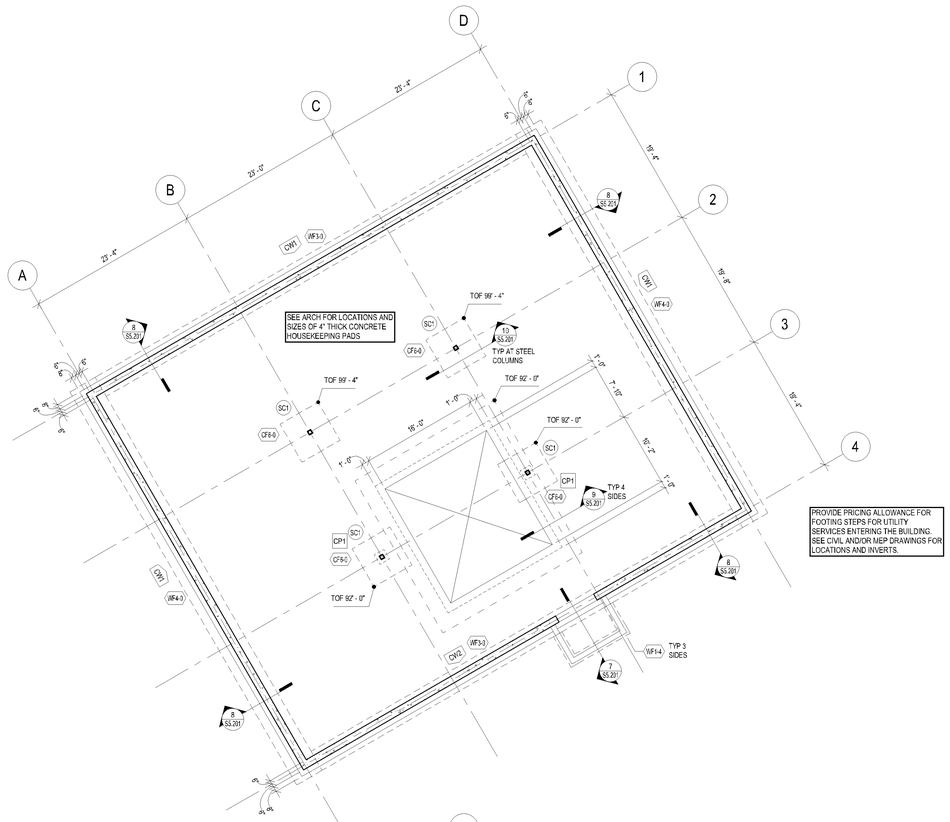
A

MN

1 FOOTING AND FOUNDATION PLAN

UNLESS NOTED OTHERWISE:

1. SEE SHEET S0.000 FOR STRUCTURAL NOTES, ABBREVIATIONS AND SYMBOLS.
2. SEE SHEET S5.201 FOR TYPICAL FOOTING AND FOUNDATION DETAILS.
3. SEE SHEET S6.201 FOR SCHEDULES.
4. PROVIDE 6" SLAB ON GRADE W/MICRO FIBER REINFORCING (MINIMUM 1.5 POUNDS PER CUBIC YARD).
5. TOP OF SLAB ELEVATION = 100'-0".
6. TOP OF EXTERIOR FOOTING ELEVATION (TOF) = 96'-8".
7. PROVIDE SLEEVES FOR ALL PIPES THAT INTERSECT BUILDING FOUNDATIONS. STEP OR THICKEN FOOTINGS AS SHOWN IN SECTION 1/S5.201 AND DETAIL 2/S5.201. COORDINATE LOCATIONS AND ELEVATIONS WITH CIVIL AND MECHANICAL.
8. TOP OF PIER ELEVATION = 99'-4".
9. SEE CONCRETE WALL REINFORCING SCHEDULE AND CONCRETE PIER SCHEDULE FOR DOWELS OUT OF FOOTINGS INTO CONCRETE.
10. FOOTINGS FOR WALLS NOT NOTED SHALL BE 12" THICK WITH A MINIMUM PROJECTION OF 4" EACH SIDE. REINFORCE WITH 2-#5 CONTINUOUS. ADD 1-#5 CONTINUOUS FOR EACH 6" WIDTH OVER 24".
11. PLACE ALL STOOP SLABS ON CLEAN GRANULAR FILL MATERIAL THAT EXTENDS DOWN TO BOTTOM OF FOOTING.
12. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF RAMPS, SLAB SLOPES, STEPPED SLABS AND PARTITION WALLS.
13. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION AND DIMENSIONS.



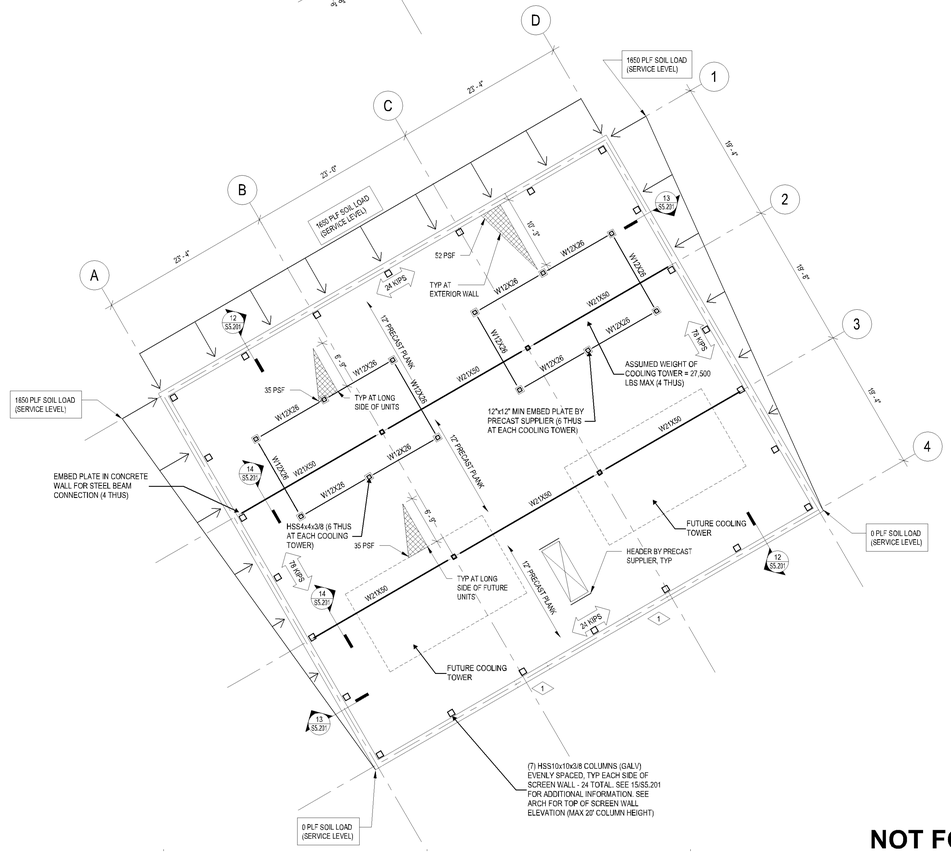
2 ROOF FRAMING PLAN

UNLESS NOTED OTHERWISE:

1. SEE SHEET S0.000 FOR STRUCTURAL NOTES, ABBREVIATIONS, AND SYMBOLS.
2. SEE SHEET S6.201 FOR SCHEDULES.
3. 12" PRECAST CONCRETE PLANK (NO TOPPING).
4. PRECAST CONCRETE PLANK BEARING EL = 116'-2".
5. SEE STRUCTURAL NOTES FOR UNIFORM SUPERIMPOSED DEAD LOAD AND FOR SNOW LOADS. SEE PLAN FOR ADDITIONAL LOADS.
6. PROVIDE 2-5/16" WEB STIFFENER PLATES AT STEEL BEAMS RUNNING OVER COLUMNS OR WALLS. CENTER ON SUPPORT.
7. FOR ALL MECHANICAL OPENINGS IN CONCRETE BEARING WALLS, SEE STRUCTURAL NOTES FOR ADDITIONAL REINFORCING AT OPENINGS.
8. XX KIPS — INDICATES SERVICE LEVEL LATERAL FORCE (COMBINED 0.6W WIND AND 1.0 SOIL) AT CONCRETE SHEAR WALL.
9. PRECAST ELEMENTS USED AS A DIAPHRAGM SYSTEM SHALL BE DESIGNED TO RESIST ALL LATERAL FORCES NOTED ON THE DRAWINGS. THE PRECAST SUPPLIER IS RESPONSIBLE FOR THE COMPLETE DESIGN OF THE PRECAST COMPONENTS AND FULL CONNECTIONS NECESSARY INCLUDING CHORDS, COLLECTORS, AND DRAG STRUTS TO PROVIDE A FULLY FUNCTIONAL DIAPHRAGM.
10. UNIFORM OUT-OF-PLANE SOIL LOADS ON DIAPHRAGM ARE REPORTED AS SERVICE LEVEL LOADS (1.3 SOIL) ON PLAN. UNIFORM OUT-OF PLANE WIND LOAD ON DIAPHRAGM IS 400 PLF (SERVICE LEVEL, 0.6W).
11. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF RAMPS, SLAB SLOPES, STEPPED SLABS AND PARTITION WALLS.
12. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION AND DIMENSIONS.

KEYNOTES

1	WALL OPENING, SEE ARCH/MECH FOR SIZE AND LOCATION. SEE STRUCTURAL NOTES FOR ADDITIONAL WALL REINFORCING REQUIRED AROUND OPENINGS. SEE 16/S5.201 FOR BRICK SUPPORT ABOVE OPENING.



THIS DRAWING GENERALLY INDICATES TYPICAL PRIMARY STRUCTURAL FRAME ELEMENTS ONLY. CONNECTIONS, STIFFENERS, GUSSET PLATES, KICKERS, DECK EDGE ANGLES, CLOSURES, LINTELS, MISCELLANEOUS FRAMING ELEMENTS, ETC. ARE NOT SHOWN AND THE CONTRACTOR/ESTIMATOR SHALL INCLUDE A REASONABLE ALLOWANCE FOR THESE ITEMS IN THE PRICING.

CD ESTIMATE SET
NOT FOR CONSTRUCTION

A

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed **ENGINEER** under the laws of the State of **Minnesota**

License Number: **--** Date: **--**

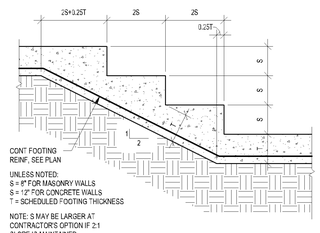
Revisions		
Description	Date	Num

Comm: **202115**
Date: **03/19/21**
Drawn: **JDU**
Check: **TLB**
North

FOUNDATION AND ROOF FRAMING PLANS

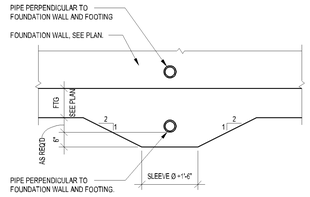
S2.001

MN



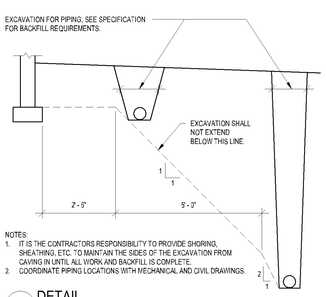
1 SECTION

TYPICAL DETAIL FOR STEPPING FOOTING



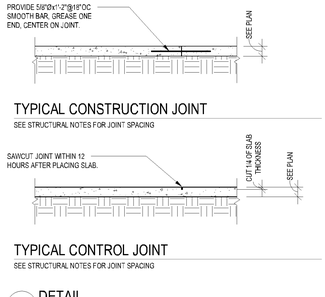
NOTES:
1. FOR PIPES BELOW FOOTING PROVIDE SLEEVE AND THICKEN CONCRETE FOOTING AS SHOWN OR STEP FOOTING BELOW PIPE PER 1/SS.201.
2. FOR PIPES WITHIN FOOTING DEPTH STEP FOOTING PER 1/SS.201 SO PIPES PASS THROUGH WALL. PROVIDE SLEEVE AND GROUT INTO WALL.
3. SLEEVE DIAMETER TO BE 2" GREATER THAN PIPE OUTSIDE DIAMETER.
4. COORDINATE PIPING LOCATIONS WITH MECHANICAL DRAWINGS.

2 DETAIL

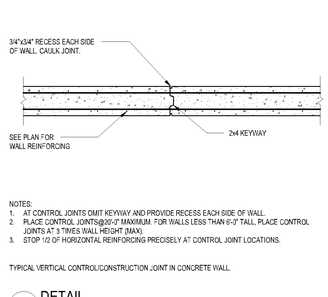


NOTES:
1. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE SHORING, SHEATHING, ETC. TO MAINTAIN THE SIDES OF THE EXCAVATION FROM CAVING IN UNTIL ALL WORK AND BACKFILL IS COMPLETE.
2. COORDINATE PIPING LOCATIONS WITH MECHANICAL AND CIVIL DRAWINGS.

3 DETAIL



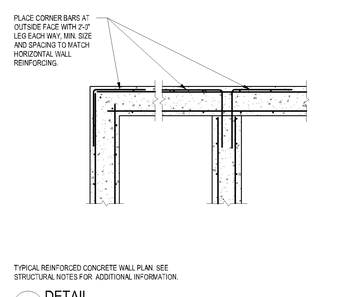
4 DETAIL



NOTES:
1. AT CONTROL JOINTS OMIT KEYWAY AND PROVIDE RECESS EACH SIDE OF WALL.
2. PLACE CONTROL JOINTS@20'-0" MAXIMUM. FOR WALLS LESS THAN 6'-0" TALL, PLACE CONTROL JOINTS AT 3 TIMES WALL HEIGHT (MAX).
3. STOP 1/2 OF HORIZONTAL REINFORCING PRECISELY AT CONTROL JOINT LOCATIONS.

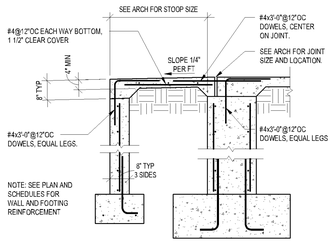
TYPICAL VERTICAL CONTROL/CONSTRUCTION JOINT IN CONCRETE WALL.

5 DETAIL

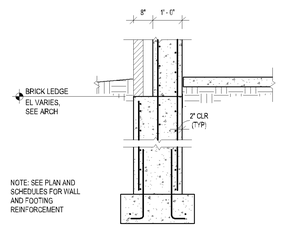


TYPICAL REINFORCED CONCRETE WALL PLAN. SEE STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.

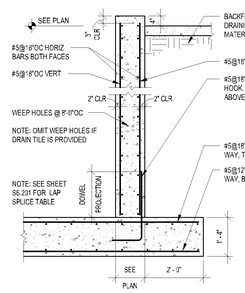
6 DETAIL



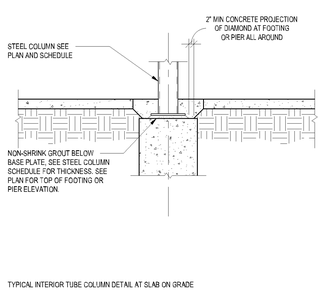
7 SECTION



8 SECTION

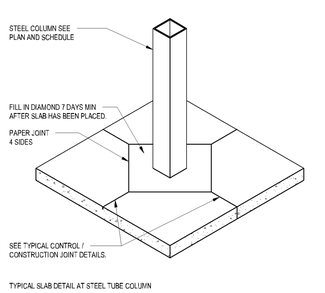


9 SECTION



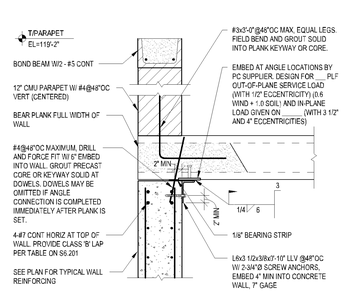
TYPICAL INTERIOR TUBE COLUMN DETAIL AT SLAB ON GRADE

10 SECTION



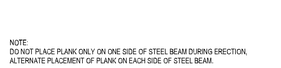
TYPICAL SLAB DETAIL AT STEEL TUBE COLUMN

11 DETAIL



12 SECTION

13 SECTION



NOTE:
DO NOT PLACE PLANK ONLY ON ONE SIDE OF STEEL BEAM DURING ERECTION, ALTERNATE PLACEMENT OF PLANK ON EACH SIDE OF STEEL BEAM.

14 SECTION

15 SECTION

16 SECTION

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Revisions		
Description	Date	Num

Comm: **202115**
Date: **03/19/21**
Drawn: **JDU**
Check: **TLB**

SECTIONS AND DETAILS

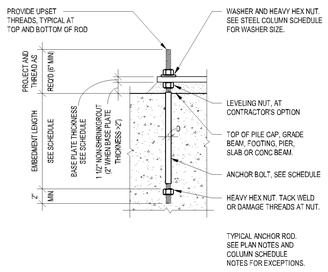
THIS DRAWING GENERALLY INDICATES TYPICAL PRIMARY STRUCTURAL FRAME ELEMENTS ONLY. CONNECTIONS, STIFFENERS, GUSSET PLATES, KICKERS, DECK EDGE ANGLES, CLOSURES, LINTELS, MISCELLANEOUS FRAMING ELEMENTS, ETC. ARE NOT SHOWN AND THE CONTRACTOR/ESTIMATOR SHALL INCLUDE A REASONABLE ALLOWANCE FOR THESE ITEMS IN THE PRICING.

CD ESTIMATE SET
NOT FOR CONSTRUCTION

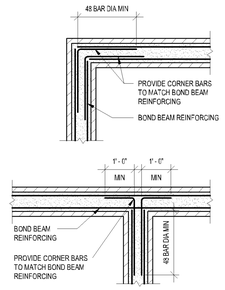
S5.201

A

MN



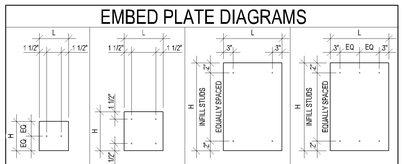
1 DETAIL



2 DETAIL

EMBED PLATE SCHEDULE		
MARK	EMBED PLATE SIZE (HxL)	EMBED PLATE REMARKS
EP1	SIZE	TYPE

EMBED PLATE DIAGRAMS

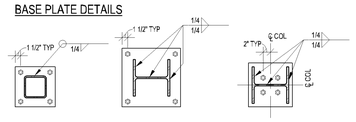


TYPE - A TYPE - B TYPE - C TYPE - D

STEEL COLUMN SCHEDULE		
MARK	SIZE	BASE PLATE
SC1	HSS8x8x5/16	12x12x1'-0" (DETAIL A)

UNLESS NOTED OTHERWISE:
1. PROVIDE 4 - 3/4"Ø UNHEADED ANCHOR RODS WITH HEX NUT AND WASHER, SEE DETAIL 1/S5.201. EXTEND 9" INTO CONCRETE TO TOP OF WASHER.
2. PROVIDE 1 1/2" NON-SHRINK GROUT BELOW BASE PLATE.
3. PROVIDE 2"x1/4" THICK WASHER AND NUT ON TOPSIDE OF BASE PLATE. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.
4. USE 1/2" COLUMN CAP PLATE AT TOP.

BASE PLATE DETAILS



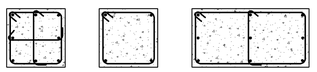
DETAIL A DETAIL B DETAIL C

DETAIL D DETAIL E DETAIL F

CONCRETE PIER SCHEDULE			
MARK	SIZE	REINFORCING	REMARKS
CP1	18"x18"	8-#6 VERT, #3 TIES @12"OC	SEE DETAIL 'A' FOR TIE LAYOUT

UNLESS NOTED OTHERWISE:
1. PROVIDE HOOKED DOWELS INTO FOOTING TO MATCH VERTICAL REINFORCING. PROJECT INTO PIER PER CLASS B TENSION LAP SPLICE TABLE. SEE STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.
2. PROVIDE CROSSTIES AS SHOWN WITH 90° HOOK ONE END AND 135° HOOK OTHER END. SIZE TO MATCH TIES. ALTERNATE TIE CONFIGURATIONS MEETING ACI 318, SECTION 25.7.2.3 ARE ACCEPTABLE.
3. PROVIDE FIRST TIE MAXIMUM OF ONE-HALF TIE SPACING ABOVE TOP OF FOOTING.
4. EXTEND TIES TO WITHIN ONE-HALF TIE SPACING OF TOP OF PIER. PROVIDE MINIMUM OF 2 TIES WITHIN 5" OF TOP OF PIER

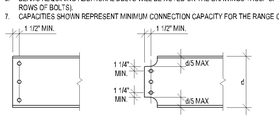
CONCRETE PIER BAR PLACEMENT DETAILS



DETAIL A DETAIL B DETAIL C

SINGLE PLATE CONNECTION TABLE				
BEAM SIZE	# OF BOLT ROWS	Ø Rn COPED	Ø Rn UNCOPED	REMARKS
W8x13-W8x31, W10x12-W13x22	2	19 (13K FOR W8x13, 17K FOR W8x13)	25	WEB STIFFENER REQUIRED FOR DOUBLE COPED BEAMS IF COPE LENGTH >7'-3" (MAX CAPACITY=17K W/OUT STIFFENER)
W8x35-W8x48, W10x26-W13x54	2	25	25	WEB STIFFENER REQUIRED FOR DOUBLE COPED BEAMS IF COPE LENGTH >7'-3" (MAX CAPACITY=113K W/OUT STIFFENER)
W8x58-LARGER, W10x60-LARGER	2	25	25	WEB STIFFENER REQUIRED FOR DOUBLE COPED BEAMS IF COPE LENGTH >7'-3" (MAX CAPACITY=21K W/OUT STIFFENER)
W12x14-W12x33 W14x22-W14x33	3	39 (33K FORW12x14, 38K FOR W12x16)	43	WEB STIFFENER REQUIRED FOR DOUBLE COPED BEAMS IF COPE LENGTH >7'-3" (MAX CAPACITY=119K W/OUT STIFFENER)
W12x35-LARGER, W14x34-LARGER	3	43	43	WEB STIFFENER REQUIRED FOR DOUBLE COPED BEAMS IF COPE LENGTH >7'-3" (MAX CAPACITY=28K W/OUT STIFFENER)
W16x26-W16x43, W18x35-W18x43	4	58	62	WEB STIFFENER REQUIRED FOR DOUBLE COPED BEAMS IF COPE LENGTH >7'-3" (MAX CAPACITY=45K W/OUT STIFFENER)
W16x45-LARGER, W18x46-LARGER	4	62	62	
ALL W21 AND W24	5	80	80	USE ONLY WHERE NOTED FOR W24'S
ALL W27 AND W30	6	95	95	USE ONLY WHERE NOTED
ALL W33 AND W36	7	111	111	USE ONLY WHERE NOTED

UNLESS NOTED OTHERWISE:
*ASSUMES AISC STANDARD CONNECTION CONFIGURATION.
1. ALL BOLTS 3/4"Ø A325-N. PLATE WELDS 2-1/4" FULL LENGTH FILLET WELDS.
2. ALL PLATES 5/16" THICK ASTM A36. ALL BEAMS ASTM A992.
3. FOR COPED BEAMS Leh=1 1/2" MINIMUM. Lev=1 1/4" MINIMUM (PARAMETERS PER AISC 14TH EDITION). MAXIMUM COPE LENGTH = 5". MAXIMUM COPE DEPTHS = 35% OF BEAM DEPTH.
4. HORIZONTAL SHORT SLOTTED HOLES PERMITTED IN BEAM WEB.
5. COORDINATE PLATE LENGTH WITH DRAWINGS AND COORDINATE BOLT LOCATIONS FOR ERECTION PURPOSES.
6. BEAMS REQUIRING ADDITIONAL BOLTS WILL BE NOTED ON THE DRAWINGS THUS: "SP-X" (X=NUMBER OF ROWS OF BOLTS).
7. CAPACITIES SHOWN REPRESENT MINIMUM CONNECTION CAPACITY FOR THE RANGE OF SIZES GIVEN.



UNCOPED BEAM END COPED BEAM END

COLUMN FOOTING SCHEDULE				
	FOOTING SIZE			
MARK	WIDTH	LENGTH	THICKNESS	REINFORCING
CF5-3	5' - 3"	5' - 3"	1' - 4"	5 - #6 EACH WAY, BOTTOM

CONTINUOUS WALL FOOTING SCHEDULE			
	FOOTING SIZE		
MARK	WIDTH	THICKNESS	REINFORCING
WF1-4	1' - 4"	1' - 0"	2-#5 CONT BOTTOM
WF3-3	3' - 3"	1' - 2"	4-#5 CONT BOTTOM
WF4-3	4' - 3"	1' - 6"	6-#5 CONT BOTTOM

CONCRETE WALL REINFORCING SCHEDULE		
MARK	REINFORCING	REMARKS
CW1	#7@12"OC VERTICAL EACH FACE #4@18"OC HORIZONTAL EACH FACE	—
CW2	#4@18"OC VERTICAL EACH FACE #4@18"OC HORIZONTAL EACH FACE	—

UNLESS NOTED OTHERWISE:
1. PROVIDE TYPE CW1 REINFORCING WHERE REINFORCING IS NOT SHOWN. CONFIRM WITH ENGINEER PRIOR TO PLACEMENT.
2. PROVIDE HOOKED DOWELS FROM FOOTING INTO CONCRETE WALLS TO MATCH VERTICAL WALL REINFORCING SIZE AND SPACING. PROJECT INTO WALL PER CLASS B TENSION LAP SPLICE TABLE. SEE STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.
3. LAP HORIZONTAL REINFORCING AS FOLLOWS:
   #4: 1'-3"
   #5: 1'-8"
4. AT 8" CONCRETE STOOP WALLS, PROVIDE #4@18"OC VERTICAL AND #4@12"OC HORIZONTAL CENTERED IN WALL.
5. WALL REINFORCING IS CONTINUOUS THROUGH COLUMNS AND LINTELS.
6. EXTEND VERTICAL REINFORCING FROM FOOTINGS TO 2" CLEAR TOP OF WALL OR TO BEAM BEARING FOR REINFORCING BELOW BEAMS.
7. LAP VERTICAL REINFORCING AS FOLLOWS:
   #4: 1'-8"
   #5: 2'-4"
   #6: 3'-1"
   #7: 4'-8"
8. SEE STRUCTURAL NOTES FOR ADDITIONAL REINFORCING AT OPENINGS.

CLASS 'A' TENSION LAP SPLICE TABLE								
BAR SIZE	fc(psi)							
	2500	3000	3500	4000	5000	6000	7000	8000
#3	1'-6"	1'-5"	1'-4"	1'-3"	1'-1"	1'-0"	1'-0"	1'-0"
#4	2'-0"	1'-10"	1'-9"	1'-7"	1'-5"	1'-4"	1'-3"	1'-2"
#5	2'-6"	2'-4"	2'-2"	2'-0"	1'-10"	1'-8"	1'-8"	1'-5"
#6	3'-0"	2'-9"	2'-7"	2'-5"	2'-2"	2'-0"	1'-10"	1'-9"
#7	4'-5"	4'-0"	3'-9"	3'-5"	3'-2"	2'-10"	2'-8"	2'-6"
#8	5'-0"	4'-7"	4'-3"	4'-0"	3'-7"	3'-3"	3'-0"	2'-10"
#9	5'-8"	5'-2"	4'-10"	4'-6"	4'-0"	3'-8"	3'-5"	3'-2"
#10	6'-4"	5'-9"	5'-4"	5'-0"	4'-6"	4'-1"	3'-9"	3'-6"
#11	7'-1"	6'-4"	5'-10"	5'-5"	4'-11"	4'-6"	4'-2"	3'-11"

CLASS 'B' TENSION LAP SPLICE TABLE								
BAR SIZE	fc(psi)							
	2500	3000	3500	4000	5000	6000	7000	8000
#3	1'-11"	1'-10"	1'-8"	1'-7"	1'-5"	1'-4"	1'-3"	1'-2"
#4	2'-7"	2'-5"	2'-3"	2'-1"	1'-11"	1'-9"	1'-7"	1'-6"
#5	3'-3"	3'-0"	2'-9"	2'-7"	2'-4"	2'-2"	2'-0"	1'-10"
#6	3'-11"	3'-7"	3'-4"	3'-1"	2'-10"	2'-7"	2'-4"	2'-3"
#7	5'-8"	5'-3"	4'-10"	4'-6"	4'-1"	3'-9"	3'-5"	3'-3"
#8	6'-5"	6'-0"	5'-6"	5'-2"	4'-8"	4'-3"	3'-11"	3'-8"
#9	7'-4"	6'-9"	6'-3"	5'-10"	5'-3"	4'-9"	4'-5"	4'-2"
#10	8'-3"	7'-8"	6'-11"	6'-6"	5'-9"	5'-3"	4'-11"	4'-7"
#11	9'-2"	8'-2"	7'-7"	7'-1"	6'-4"	5'-10"	5'-5"	5'-0"

NOTES:
1. THESE TABLES SHOW LENGTHS FOR PLAIN, BOTTOM ASTM A615 GRADE 60 BARS IN NORMAL WEIGHT CONCRETE, MEETING THE SPACING AND COVER LIMITATIONS GIVEN BELOW. MULTIPLY THESE LENGTHS BY ALL OF THE APPLICABLE FACTORS GIVEN FOR OTHER CONDITIONS. SPECIFIC EMBEDMENT, LAP, OR PROJECTION LENGTHS SHOWN ON DRAWINGS GOVERN OVER THESE TABLES.
2. SPACING AND COVER REQUIREMENTS:
   a. CLEAR SPACING BETWEEN BARS AT SPLICE ≥2db AND CLEAR COVER ≥db OR
   b. CLEAR SPACING BETWEEN BARS AT SPLICE ≥db AND CLEAR COVER ≥db AND STIRRUPS/TIES OVER FULL LENGTH OF SPLICE. STIRRUPS/TIES TO BE SPACED SUCH THAT:
      s x ns≤16 FOR #3 TIES/STIRRUPS
      s x ns≤32 FOR #4 TIES/STIRRUPS
      s x ns≤53 FOR #5 TIES/STIRRUPS
   db = BAR DIAMETER IN INCHES, s = SPACING OF TIES/STIRRUPS, n = NUMBER OF BARS SPLICED AT A GIVEN LOCATION.
3. MULTIPLY GIVEN SPLICE LENGTHS BY ALL THE FOLLOWING APPLICABLE FACTORS:
   a. MULTIPLY BY 1.5 IF SPACING OR COVER REQUIREMENTS ARE NOT MET.
   b. MULTIPLY BY 1.3 FOR TOP BARS. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE BELOW THE BAR.
   c. MULTIPLY BY 1.2 FOR #3 OR #4 EPOXY COATED BARS SPACED 4" MIN OC WITH 1 1/2" MIN CLEAR COVER.
   d. MULTIPLY BY 1.31 FOR OTHER EPOXY COATED TOP BARS.
   e. MULTIPLY BY 1.5 FOR OTHER EPOXY COATED BARS - EXCEPT TOP BARS.
   f. MULTIPLY BY 1.3 FOR LIGHTWEIGHT CONCRETE.
   g. MULTIPLY BY fy/60 FOR BARS WITH YIELD STRESS >60 KSI.
4. USE CLASS 'B' TENSION LAP SPLICES UNLESS SPECIFICALLY NOTED OTHERWISE.
5. COMPRESSION LAP LENGTH, ONLY WHERE NOTED, TO BE 30db. INCREASE TO 44db FOR Fy = 75 KSI, AND 57db FOR Fy = 80KSI.

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Revisions		
Description	Date	Num

Comm: 202115
Date: 03/19/21
Drawn: JDU
Check: TLB

SCHEDULES AND DETAILS

S6.201

A

MN

MECHANICAL SYMBOLS

PRESSURE GAGE	TWO WAY TEMPERATURE CONTROL VALVE	AIR DEVICE TAGS:
AIR VENT	THREE WAY TEMPERATURE CONTROL VALVE	SUPPLY DIFFUSER: TYPE; A 2408 250 — FACE SIZE & NECK DIA.; AIR FLOW (CFM)
STRAINER	UNION	A 2408 800 — TYPE; FACE SIZE & NECK DIA.; AIR FLOW (CFM)
PIPING GUIDE	THERMOMETER	LINEAR SUPPLY DIFFUSER: A 4-2-10 250 — TYPE; LENGTH IN FT, NUMBER OF SLOTS & NECK DIA.; AIR FLOW (CFM)
PIPING ANCHOR	BALL VALVE	SUPPLY REGISTER OR GRILLE: A 12x8 250 — TYPE; SIZE; AIR FLOW (CFM)
EXPANSION JOINT	BUTTERFLY VALVE	RETURN GRILLE: A — TYPE (24x24); A — TYPE (24x12); A 24X12 08 250 — TYPE; FACE SIZE; NECK DIA.; AIRFLOW (CFM)
FLEXIBLE CONNECTION	GATE VALVE	EXHAUST, TRANSFER & RETURN REGISTERS & GRILLES: A 12x8 250 — TYPE; SIZE; AIR FLOW (CFM)
DIRECTION OF FLOW	CHECK VALVE	
CONCENTRIC REDUCER	GLOBE VALVE	
ECCENTRIC REDUCER	PRESSURE OR PRESSURE/ TEMPERATURE RELIEF VALVE	
STEAM TRAP ASSEMBLY	ANGLE VALVE	
ELBOW DOWN	PRESSURE REDUCING VALVE	
ELBOW UP	SOLENOID VALVE	
TEE CONNECTION DOWN	WALL HYDRANT	
TEE CONNECTION UP	HOSE BIBB	
PIPING CONNECTION	LUBRICATED PLUG GAS COCK	
CAPPED PIPE	BALANCING VALVE	
FINNED TUBE RADIATION	RPZ VALVE	
FLOOR DRAIN	BACKFLOW PREVENTOR	
SHOCK ABSORBER	FLOOR CLEANOUT	
SUPPLY DUCT ELBOW DOWN	CLEANOUT	
SUPPLY DUCT ELBOW UP	DUCT SMOKE DETECTOR	
RETURN/EXHAUST ELBOW DOWN	MOTORIZED O.B. DAMPER	
RETURN/EXHAUST ELBOW UP	ACCESS PANEL	
OUTSIDE AIR ELBOW DOWN	ELBOW W/ TURNING VANES	
OUTSIDE AIR ELBOW UP	LONG RADIUS DUCT ELBOW	
SUPPLY AIR FLOW		
RETURN AIR FLOW	SUPPLY AIR DIFFUSER	
F FIRE DAMPER	RETURN/EXHAUST AIR REGISTER/GRILLE	
F/S FIRE/SMOKE DAMPER	SUPPLY AIR REGISTER	
S SMOKE DAMPER	SUPPLY DIFFUSER TAKE-OFF W/ VOLUME DAMPER, MAXIMUM FLEX DUCT LENGTH 4'-0"	
R RADIATION DAMPER		
MANUAL VOLUME DAMPER		
CONNECT TO EXISTING		

MECHANICAL LINETYPES

S	DOMESTIC SOFT COLD WATER PIPING
–	DOMESTIC COLD WATER PIPING
– –	DOMESTIC HOT WATER PIPING
HT	HEAT TRACE DOMESTIC HOT WATER PIPING
– – –	DOMESTIC CIRCULATING HOT WATER PIPING
– – – –	VENT PIPING
AV	ACID RESISTANT VENT PIPING
	SANITARY WASTE ABOVE GROUND PIPING
SS	SANITARY WASTE BELOW GROUND PIPING
AW	ACID RESISTANT WASTE ABOVE GROUND PIPING
AW	ACID RESISTANT WASTE BELOW GROUND PIPING
PD	PUMP DISCHARGE PIPING
SD	STORM DRAIN ABOVE GROUND PIPING
SD	STORM DRAIN BELOW GROUND PIPING
CD	CONDENSATE DRAIN PIPING
I	INDUSTRIAL AIR PIPING
VAC	VACUUM PIPING
NG	NATURAL GAS PIPING
ING	INTERRUPTIBLE NATURAL GAS PIPING
FNG	FIRM NATURAL GAS PIPING
LPG	LIQUEFIED PETROLEUM GAS PIPING
FOS	FUEL OIL SUPPLY PIPING
FOR	FUEL OIL RETURN PIPING
FOG	FUEL OIL GAGE PIPING
FP	FIRE PROTECTION PIPING
HWS	BUILDING HEATING WATER SUPPLY PIPING
HWR	BUILDING HEATING WATER RETURN PIPING
LPS	LOW PRESSURE STEAM PIPING
MPS	MEDIUM PRESSURE STEAM PIPING
HPS	HIGH PRESSURE STEAM PIPING
LPR	LOW PRESSURE CONDENSATE RETURN PIPING
MPR	MEDIUM PRESSURE CONDENSATE RETURN PIPING
HPR	HIGH PRESSURE CONDENSATE RETURN PIPING
RR	REVERSE RETURN HYDRONIC PIPING (EXISTING)
DHS	DISTRICT HEATING SUPPLY PIPING
DHR	DISTRICT HEATING RETURN PIPING
CHWS	BUILDING CHILLED WATER SUPPLY PIPING
CHWR	BUILDING CHILLED WATER RETURN PIPING
CWS	BUILDING CHILLER CONDENSER WATER SUPPLY PIPING
CWR	BUILDING CHILLER CONDENSER WATER RETURN PIPING
LIQ	DX REFRIGERATION SYSTEM LIQUID PIPING
SUC	DX REFRIGERATION SYSTEM SUCTION PIPING
HG	DX REFRIGERATION SYSTEM HOT GAS PIPING
BF	BOILER FEED PIPING
ES	EXTERIOR HYDRONIC SUPPLY PIPING
IS	INTERIOR HYDRONIC SUPPLY PIPING
CCHWS	CAMPUS CHILLED WATER SUPPLY
CCHWR	CAMPUS CHILLED WATER RETURN
O	OXYGEN PIPING
V	VACUUM PIPING
A	MEDICAL AIR PIPING
N	NITROGEN PIPING
W	WASTE ANESTHESIA GAS DISPOSAL PIPING
NO	NITROUS OXIDE PIPING
CO	CARBON DIOXIDE PIPING
IA	INSTRUMENT AIR PIPING

MECHANICAL ABBREVIATIONS

AD	AREA DRAIN	GR	GRILLE
AFF	ABOVE FINISHED FLOOR	HB	HOSE BIBB
AHAP	AS HIGH AS POSSIBLE	HCW	HARD COLD WATER
BFF	BELOW FINISHED FLOOR	HP	HORSE POWER
BLDG	BUILDING	HW	HOT WATER
BSMT	BASEMENT	INV	INVERT
BTWN	BETWEEN	KW	KILOWATT
CB	CATCH BASIN	LAT	LEAVING AIR TEMPERATURE
CFM	CUBIC FEET/MINUTE	LWT	LEAVING WATER TEMPERATURE
CHW	CIRCULATING HOT WATER	MAX	MAXIMUM
CLG	CEILING	MBH	1000 BTU
CO	CLEANOUT	MECH	MECHANICAL
CONCR	CONCRETE	MH	MANHOLE
CONTR	CONTRACTOR	MIN	MINIMUM
CW	COLD WATER	NTS	NOT TO SCALE
DB	DRY BULB	OA	OUTSIDE AIR
DEG	DEGREE	OBD	OPPOSED BLADE DAMPER
DIA	DIAMETER	ORD	OVERFLOW ROOF DRAIN
DIFF	DIFFUSER	P-#	PLUMBING FIXTURE NUMBER
EAT	ENTERING AIR TEMPERATURE	P & T	PRESSURE AND THERMOSTATIC
EDR	SQUARE FEET RADIATION	PD	PRESSURE DROP
EFF	EFFICIENCY	PLBG	PLUMBING
EL	ELBOW	QUAN	QUANTITY
ELEC	ELECTRICAL	RA	RETURN AIR
ELEV	ELEVATION	RD	ROOF DRAIN
EWT	ENTERING WATER TEMPERATURE	REG	REGISTER
EXH	EXHAUST	REQ'D	REQUIRED
EXIST	EXISTING	RPM	REVOLUTIONS/MINUTE
F	DEGREES FAHRENHEIT	SA	SUPPLY AIR
F & T	FLOAT AND THERMOSTATIC	SCW	SOFT COLD WATER
FD	FLOOR DRAIN	SHT	SHEET
FH	FIRE HYDRANT	SP	STATIC PRESSURE
FLA	FULL LOAD AMPS	TD	TEMPERATURE DIFFERENCE
FLR	FLOOR	VTR	VENT THROUGH ROOF
FTR	FINNED TUBE RADIATION	W/	WITH
GEN	GENERAL	WB	WET BULB
GPM	GALLONS/MINUTE	WH	WALL HYDRANT

MECHANICAL SHEET LIST

M1.00	CHILLER PLANT UNDERGROUND PLAN
M1.01	CHILLER PLANT MAIN LEVEL PLAN
M1.02	CHILLER PLANT ROOF PLAN
M1.03	CHILLED WATER SITE PIPING PLAN
M1.04	JEFFERSON BOILER PLAN
M2.00	CHILLER WATER PLANT SCHEMATICS
M2.01	JEFFERSON HIGH SCHOOL CHILLER ROOM SCHEMATICS
M3.00	MECHANICAL SCHEMATICS AND DETAILS
M3.01	MECHANICAL DETAILS
M4.00	MECHANICAL SCHEDULES

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MECHANICAL TITLE SHEET

M

CD ESTIMATE
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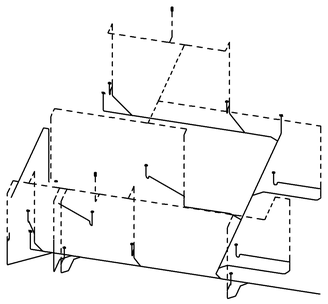
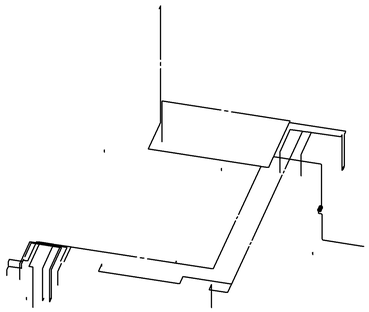
Scale: 1/8" = 1'-0"

M0.00

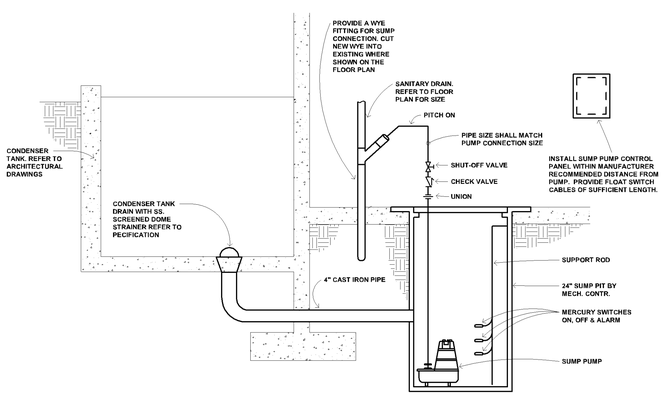
MN



C1 Central Waste and Vent Riser Diagram

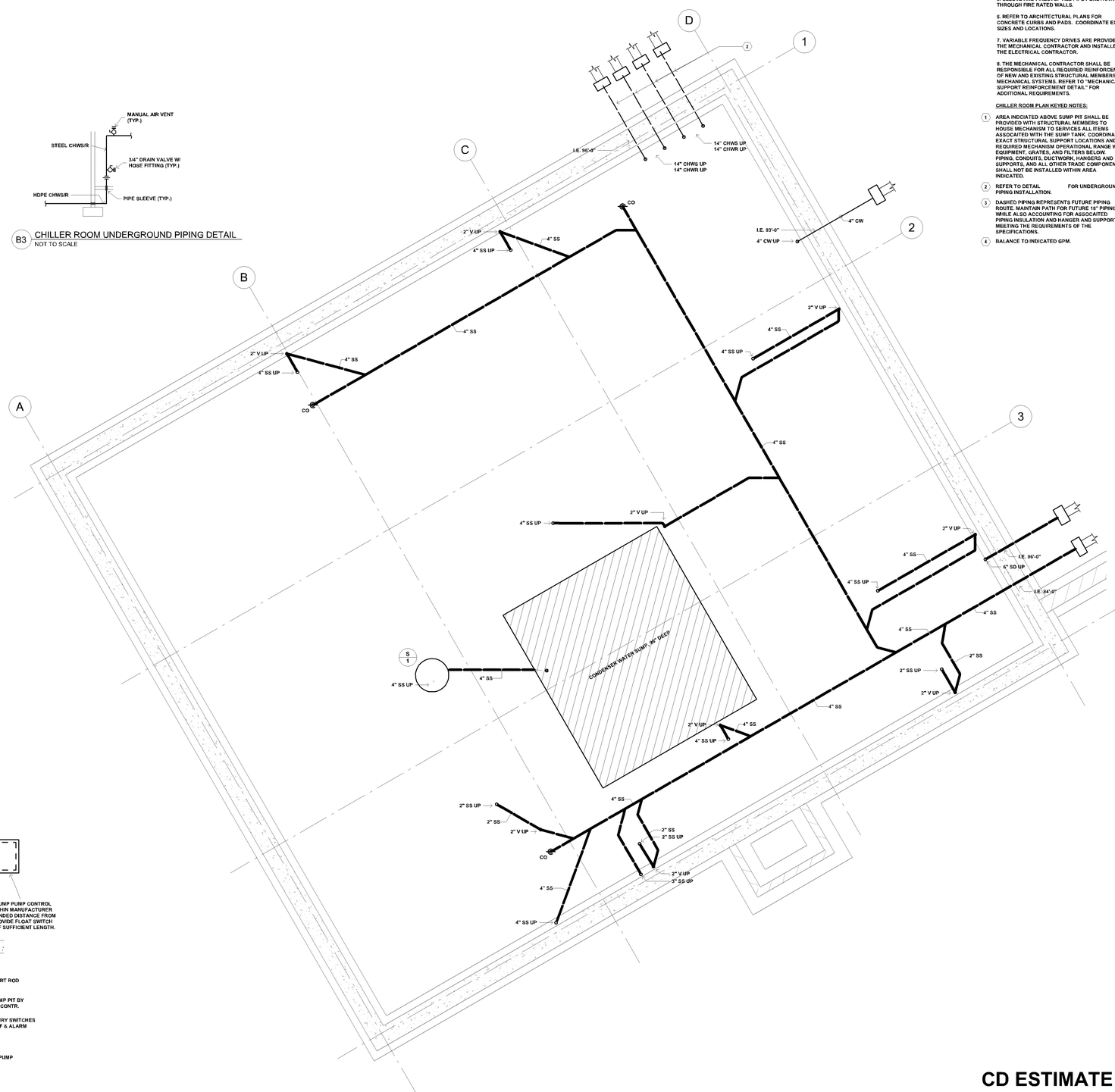


E1 Central Supply Riser Diagram



F1 SUMP PUMP DETAIL
NOT TO SCALE

B3 CHILLER ROOM UNDERGROUND PIPING DETAIL
NOT TO SCALE



F3 CHILLER PLANT UNDERGROUND PLAN
1/4" = 1'-0"

CHILLER ROOM PLAN GENERAL NOTES:

1. ALL RISES AND DROPS IN DUCTWORK ARE NOT NECESSARILY SHOWN. LAYOUT ROUTING AND COORDINATE WORK WITH OTHER TRADES BEFORE CONSTRUCTION.

2. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF CONSTRUCITON UNLESS OTHERWISE NOTED ON THE PLANS. NO CUTTING OF STRUCTURAL MEMBERS OR STRUCTURE WHICH WILL DETERIORATE THE INTEGRITY AND STRENGTH OF THE BUILDING WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

3. MECHANICAL CONTRACTOR SHALL DETERMINE LIMITATIONS AND/OR CONFLICTS RELATIVE TO THE EXECUTION OF HIS WORK PRIOR TO BID. VERIFY EXACT DETAIL OF INSTALLATION REQUIRED TO PROVIDE SYSTEMS SHOWN WITHIN SPACE INTENDED.

4. VERIFY EXACT LOCATIONS OF FLOOR DRAINS WITH ARCHITECTURAL PLANS.

5. SLEEVE AND FIRESTOP ALL PIPE PENETRATIONS THROUGH FIRE RATED WALLS.

6. REFER TO ARCHITECTURAL PLANS FOR CONCRETE CURBS AND PADS. COORDINATE EXACT SIZES AND LOCATIONS.

7. VARIABLE FREQUENCY DRIVES ARE PROVIDED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

8. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED REINFORCEMENT OF NEW AND EXISTING STRUCTURAL MEMBERS FOR MECHANICAL SYSTEMS. REFER TO "MECHANICAL SUPPORT REINFORCEMENT DETAIL" FOR ADDITIONAL REQUIREMENTS.

CHILLER ROOM PLAN KEYED NOTES:

1. AREA INDICIATED ABOVE SUMP PIT SHALL BE PROVIDED WITH STRUCTURAL MEMBERS TO HOUSE MECHANISM TO SERVICES ALL ITEMS ASSOCAITED WITH THE SUMP TANK. COORDINATE EXACT STRUCTURAL SUPPORT LOCATIONS AND REQUIRED MECHANISM OPERATIONAL RANGE WITH EQUIPMENT, GRATES, AND FILTERS BELOW. PIPING, CONDUITS, DUCTWORK, HANGERS AND SUPPORTS, AND ALL OTHER TRADE COMPONENTS SHALL NOT BE INSTALLED WITHIN AREA INDICATED.
2. REFER TO DETAIL FOR UNDERGROUND PIPING INSTALLATION.
3. DASHED PIPING REPRESENTS FUTURE PIPING ROUTE. MAINTAIN PATH FOR FUTURE 18" PIPING WHILE ALSO ACCOUNTING FOR ASSOCAITED PIPING INSULATION AND HANGER AND SUPPORTS MEETING THE REQUIREMENTS OF THE SPECIFICATIONS.
4. BALANCE TO INDICATED GPM.

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CHILLER PLANT UNDERGROUND PLAN

Scale: As indicated

M1.00

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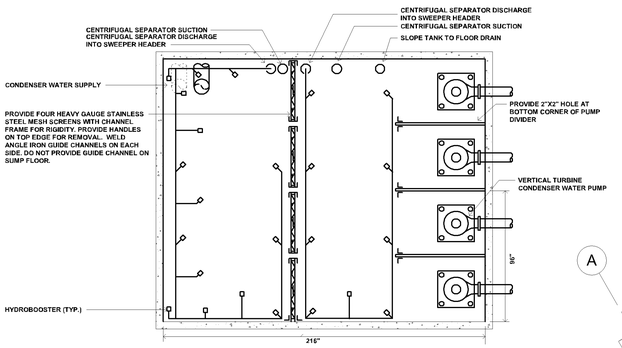
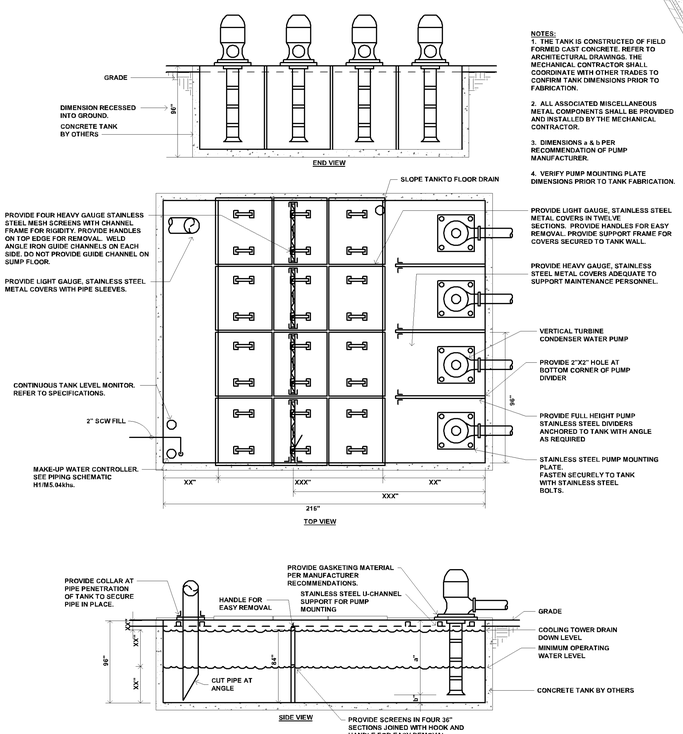
M

MN



C1 COOLING TOWER SUMP FILTER PIPING DETAIL
1/8" = 1'-0"



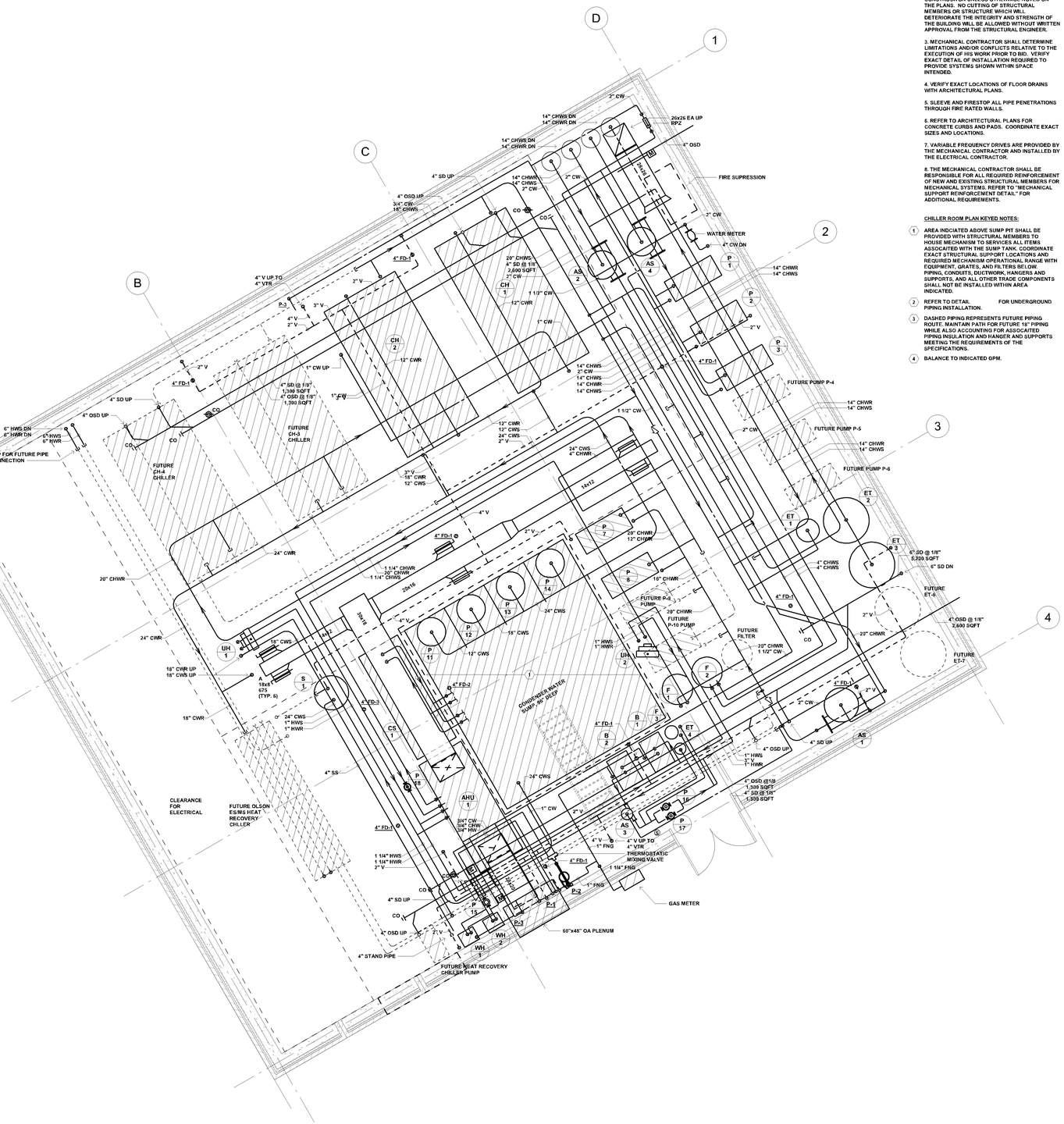
NOTES:
1. THE TANK IS CONSTRUCTED OF FIELD FORMED CAST CONCRETE. REFER TO ARCHITECTURAL DRAWINGS. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO CONFIRM TANK DIMENSIONS PRIOR TO FABRICATION.

2. ALL ASSOCIATED MISCELLANEOUS METAL COMPONENTS SHALL BE PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

3. DIMENSIONS a & b PER RECOMMENDATION OF PUMP MANUFACTURER.

4. VERIFY PUMP MOUNTING PLATE DIMENSIONS PRIOR TO TANK FABRICATION.

F1 COOLING TOWER SUMP DETAIL
1/8" = 1'-0"



F3 CHILLER PLANT MAIN LEVE PLAN
1/4" = 1'-0"

M

CHILLER ROOM PLAN GENERAL NOTES:

1. ALL RISES AND DROPS IN DUCTWORK ARE NOT NECESSARILY SHOWN. LAYOUT ROUTING AND COORDINATE WORK WITH OTHER TRADES BEFORE CONSTRUCTION.

2. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF CONSTRUCITON UNLESS OTHERWISE NOTED ON THE PLANS. NO CUTTING OF STRUCTURAL MEMBERS OR STRUCTURE WHICH WILL DETERIORATE THE INTEGRITY AND STRENGTH OF THE BUILDING WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

3. MECHANICAL CONTRACTOR SHALL DETERMINE LIMITATIONS AND/OR CONFLICTS RELATIVE TO THE EXECUTION OF HIS WORK PRIOR TO BID. VERIFY EXACT DETAIL OF INSTALLATION REQUIRED TO PROVIDE SYSTEMS SHOWN WITHIN SPACE INTENDED.

4. VERIFY EXACT LOCATIONS OF FLOOR DRAINS WITH ARCHITECTURAL PLANS.

5. SLEEVE AND FIRESTOP ALL PIPE PENETRATIONS THROUGH FIRE RATED WALLS.

6. REFER TO ARCHITECTURAL PLANS FOR CONCRETE CURBS AND PADS. COORDINATE EXACT SIZES AND LOCATIONS.

7. VARIABLE FREQUENCY DRIVES ARE PROVIDED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

8. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED REINFORCEMENT OF NEW AND EXISTING STRUCTURAL MEMBERS FOR MECHANICAL SYSTEMS. REFER TO "MECHANICAL SUPPORT REINFORCEMENT DETAIL" FOR ADDITIONAL REQUIREMENTS.

CHILLER ROOM PLAN KEYED NOTES:

1. AREA INDICIATED ABOVE SUMP PIT SHALL BE PROVIDED WITH STRUCTURAL MEMBERS TO HOUSE MECHANISM TO SERVICES ALL ITEMS ASSOCAITED WITH THE SUMP TANK. COORDINATE EXACT STRUCTURAL SUPPORT LOCATIONS AND REQUIRED MECHANISM OPERATIONAL RANGE WITH EQUIPMENT, GRATES, AND FILTERS BELOW. PIPING, CONDUITS, DUCTWORK, HANGERS AND SUPPORTS, AND ALL OTHER TRADE COMPONENTS SHALL NOT BE INSTALLED WITHIN AREA INDICATED.
2. REFER TO DETAIL FOR UNDERGROUND PIPING INSTALLATION.
3. DASHED PIPING REPRESENTS FUTURE PIPING ROUTE. MAINTAIN PATH FOR FUTURE 18" PIPING WHILE ALSO ACCOUNTING FOR ASSOCAITED PIPING INSULATION AND HANGER AND SUPPORTS MEETING THE REQUIREMENTS OF THE SPECIFICATIONS.
4. BALANCE TO INDICATED GPM.

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CHILLER PLANT MAIN LEVEL PLAN

Scale: As indicated

M1.01

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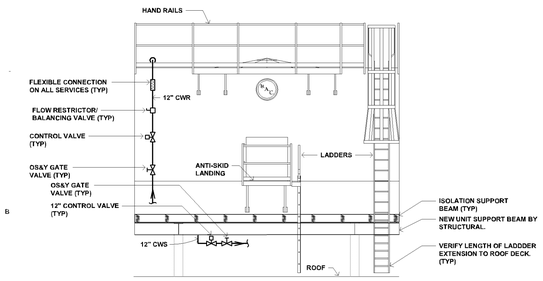
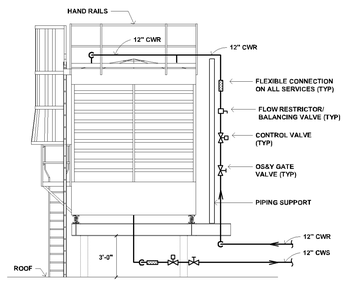
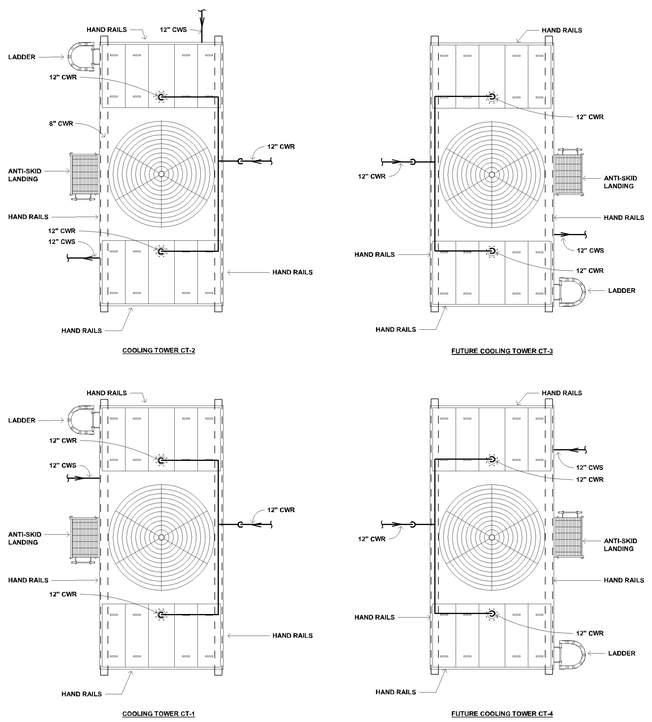
MN

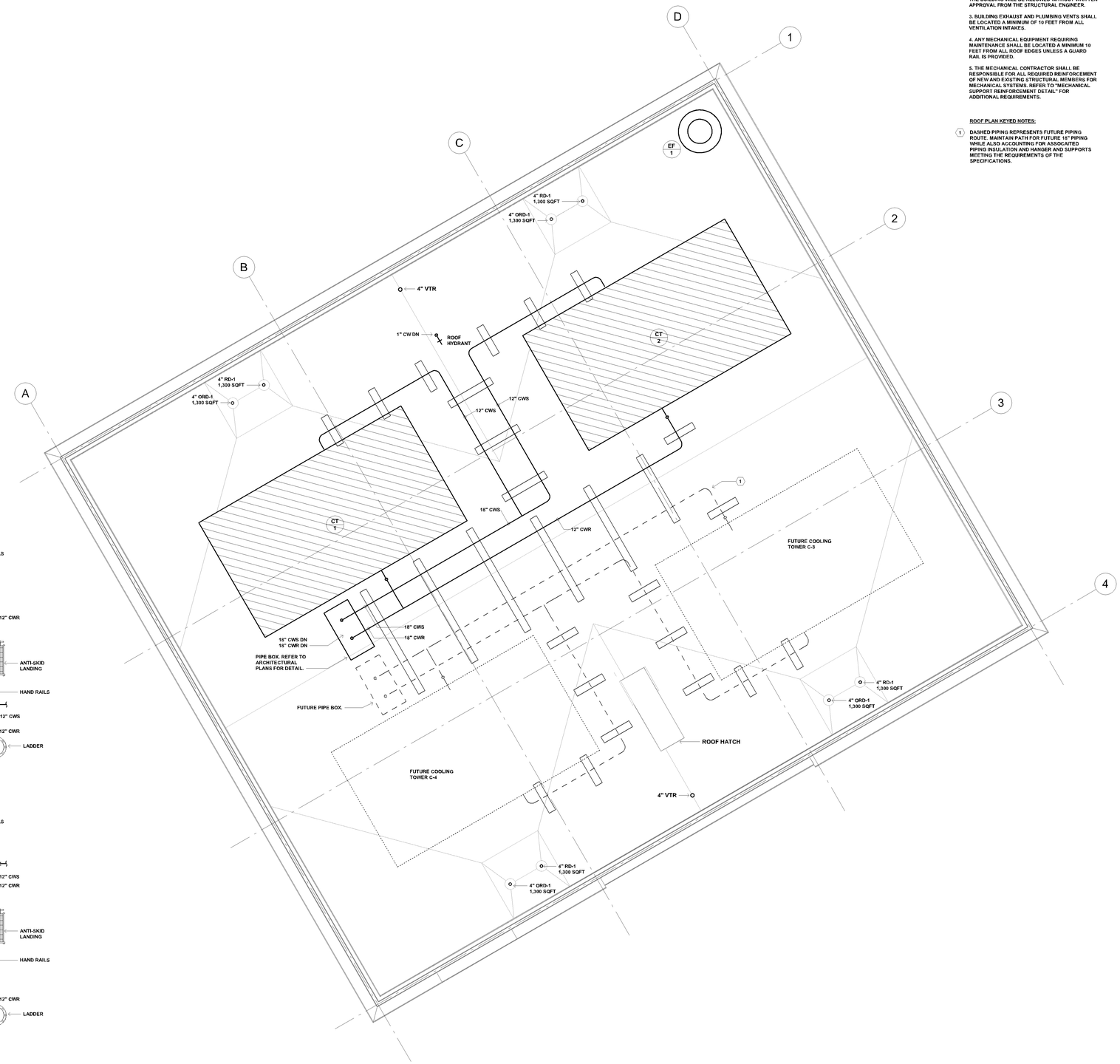




C1 COOLING TOWER SCHEMATICS - NEW WORK
NOT TO SCALE



F1 COOLING TOWER SCHEMATICS - NEW WORK PLAN VIEW
NOT TO SCALE



F3 CHILLER PLANT ROOF PLAN
1/4" = 1'-0"

ROOF PLAN GENERAL NOTES:

1. MECHANICAL CONTRACTOR SHALL DETERMINE LIMITATIONS AND/OR CONFLICTS RELATIVE TO THE EXECUTION OF HIS WORK PRIOR TO BID. VERIFY EXACT DETAIL OF INSTALLATION REQUIRED TO PROVIDE SYSTEMS SHOWN WITHIN SPACE INTENDED.

2. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF CONSTRUCITON UNLESS OTHERWISE NOTED ON THE PLANS. NO CUTTING OF STRUCTURAL MEMBERS OR STRUCTURE WHICH WILL DETERIORATE THE INTEGRITY AND STRENGTH OF THE BUILDING WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

3. BUILDING EXHAUST AND PLUMBING VENTS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ALL VENTILATION INTAKES.

4. ANY MECHANICAL EQUIPMENT REQUIRING MAINTENANCE SHALL BE LOCATED A MINIMUM 10 FEET FROM ALL ROOF EDGES UNLESS A GUARD RAIL IS PROVIDED.

5. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED REINFORCEMENT OF NEW AND EXISTING STRUCTURAL MEMBERS FOR MECHANICAL SYSTEMS. REFER TO "MECHANICAL SUPPORT REINFORCEMENT DETAIL" FOR ADDITIONAL REQUIREMENTS.

ROOF PLAN KEYED NOTES:

1. DASHED PIPING REPRESENTS FUTURE PIPING ROUTE. MAINTAIN PATH FOR FUTURE 18" PIPING WHILE ALSO ACCOUNTING FOR ASSOCIATED PIPING INSULATION AND HANGER AND SUPPORTS MEETING THE REQUIREMENTS OF THE SPECIFICATIONS.

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CHILLER PLANT ROOF PLAN

Scale: As Indicated

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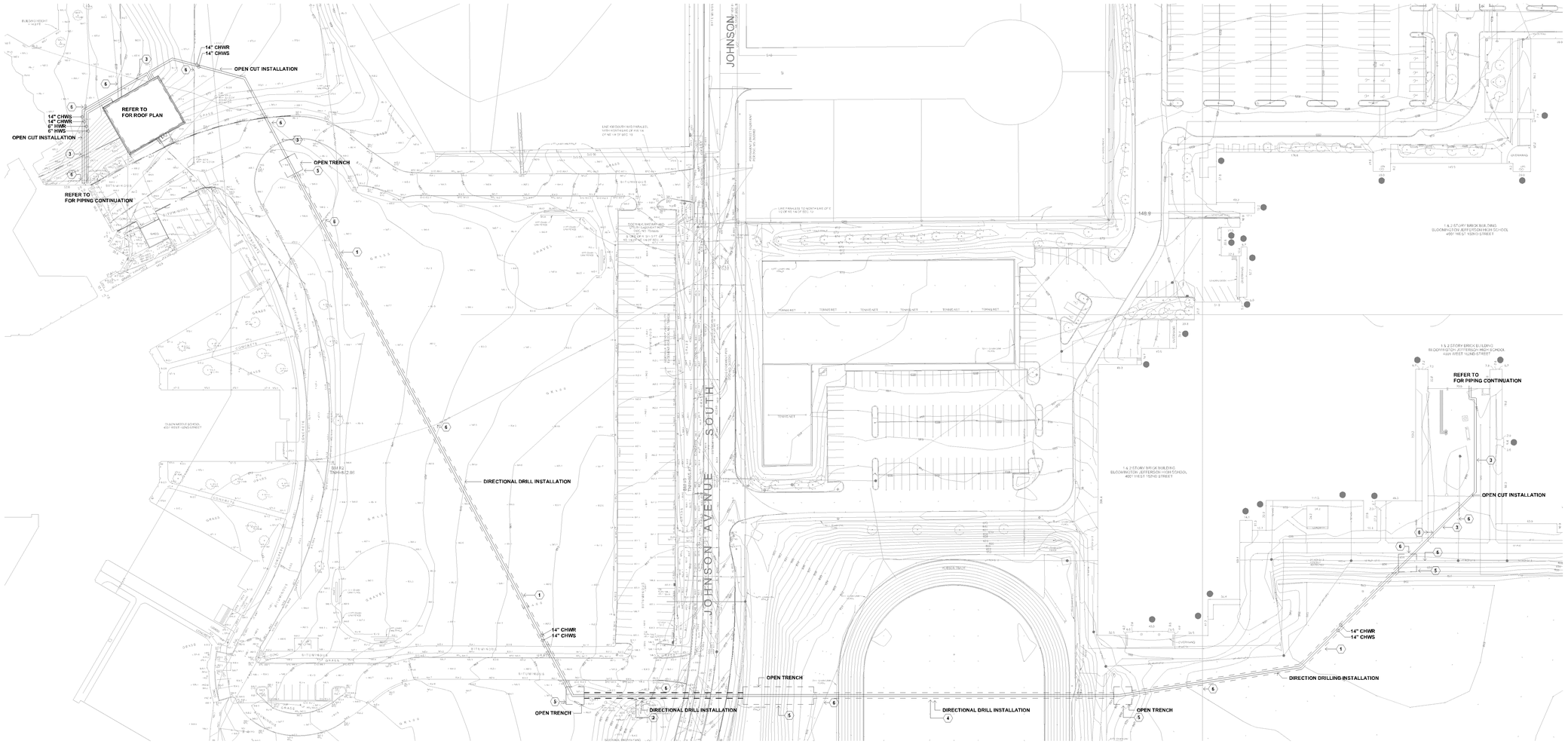

E1 CHILLED WATER SITE PIPING PLAN
NOT TO SCALE

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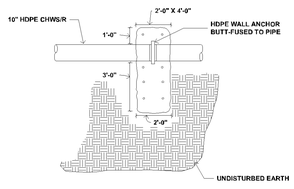
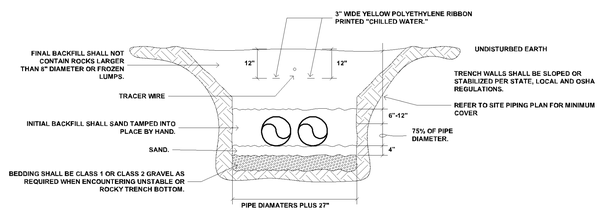


F1 UNDERGROUND PIPE ANCHOR DETAIL
NOT TO SCALE



F2 UNDERGROUND PIPING DETAIL
NOT TO SCALE

SITE PIPING GENERAL NOTES:

1. ALL RISES AND DROPS IN DUCTWORK ARE NOT NECESSARILY SHOWN. LAYOUT ROUTING AND COORDINATE WORK WITH OTHER TRADES BEFORE CONSTRUCTION.

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3. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION AND BACKFILL TO GRADE AS INDICATED ON PLANS. COORDINATE ALL WORK WITH SITE SURVEY AND CIVIL DRAWINGS.

4. ALL UNDERGROUND PIPING SHALL MAINTAIN A MINIMUM OF 4'-0" OF EARTH COVER AT ALL TIMES THROUGH OUT THE PIPING ROUTE UNLESS DEEPER ELEVATION IS SPECIFICALLY NOTED. COORDINATE UNDERGROUND CHILLED WATER PIPING WITH ALL EXISTING UTILITIES LOCATION AND ELEVATIONS PRIOR TO EXCAVATION.

SITE PLAN KEYED NOTES:

1. PIPING ROUTED WITHIN AREA INDCIATED TO BE INSTALLED USING DIRECTION DRILL INSTALLATION TECHNIQUES.
2. PIPING ROUTED BENEATH EXISTING ROADWAY TO BE INSTALLED USING DIRECTIONAL DRILLING. PIPE JACKING REQUIRED. CARRIER PIPING TO BE INSTALLED WITHIN CASING PIPE. REFER TO CIVIL DRAWINGS.
3. PIPING TO BE INSTALLED WITHIN OPEN CUT EXCAVATION. REFER TO CIVIL PLANS FOR EXTENT OF OPEN CUT INSTALLATION AND COORDINATE EXACT PIPING ROUTE WITH SITE REMOVAL AND RESTORATION.
4. PIPING ROUTED WITHIN AREA INDCIATED TO BE INSTALLED USING DIRECTION DRILL INSTALLATION TECHNIQUES. PIPING WITHIN AREA INDICATED TO BE INSTALLED WITH A MINIMUM OF 15'-0" OF GRADE COVER.
5. COORDINATE OPEN TRENCH DIMESIONS WITH PIPING ELEVATIONS AND ALL EXISTING UTILITES PRIOR TO INSTALLATION. COORDINATE OPEN TRENCH EXTENTS WITH SITE REMOVAL AND RESTORATION.
6. EXISTING UTILITY. COORDINATE EXACT PIPING ROUTE WITH ALL EXISTING UTILITY LOCATION AND ELEVATION PRIOR TO PIPING INSTALLATION.

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CHILLED WATER SITE PIPING PLAN

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M1.03

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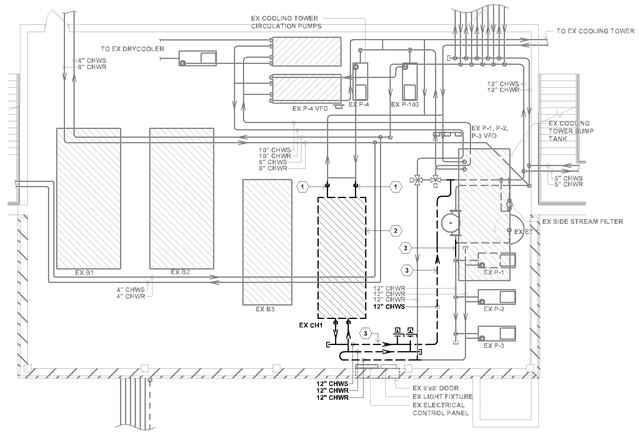


C5 JEFFERSON BOILER ROOM DEMOLITION PLAN
1/8" = 1'-0"

DEMOLITION PLAN GENERAL NOTES:

1. MECHANICAL CONTRACTOR SHALL DETERMINE LIMITATIONS AND/OR CONFLICTS RELATIVE TO THE EXECUTION OF HIS WORK PRIOR TO BID. VERIFY EXACT DETAIL OF INSTALLATION REQUIRED TO PROVIDE SYSTEMS SHOWN WITHIN SPACE INTENDED.

2. ALL EXISTING SERVICES SHALL BE MAINTAINED AT ALL TIMES, UNLESS OTHERWISE INDICATED ON THE PLANS. COORDINATE DISRUPTION OF SERVICES WITH OWNER TO PROVIDE AN ACCEPTABLE TIME FOR DOWN TIME.

3. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF EXISTING CONSTRUCTION UNLESS OTHERWISE NOTED ON PLANS. NO CUTTING OF STRUCTURAL MEMBERS OR STRUCTURE WHICH WILL DETERIORATE THE INTEGRITY AND STRENGTH OF THE BUILDING WILL BE ALLOWED WITH OUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

4. THE MECHANICAL CONTRACTOR SHALL REMOVE ALL EXISTING CEILING TILES AND GRIDS AS REQUIRED FOR INSTALLATION OF NEW WORK. ANY DAMAGED TILES AND OR GRIDS SHALL BE REPLACED WITH NEW TO MATCH AT THE CONTRACTORS EXPENSE.

5. THE MECHANICAL CONTRACTOR SHALL REMOVE ALL SYSTEMS SHOWN BOLD AND DASHED. ALL SYSTEMS NOT SHOWN BOLD AND DASHED SHALL REMAIN.

6. PATCH AND REPAIR OPENINGS THROUGH WALLS AND FLOORS WHERE MECHANICAL SYSTEMS WERE REMOVED TO MATCH EXISTING AND TO MAINTAIN FIRE RATING. WALL FINISHED BY OTHERS.

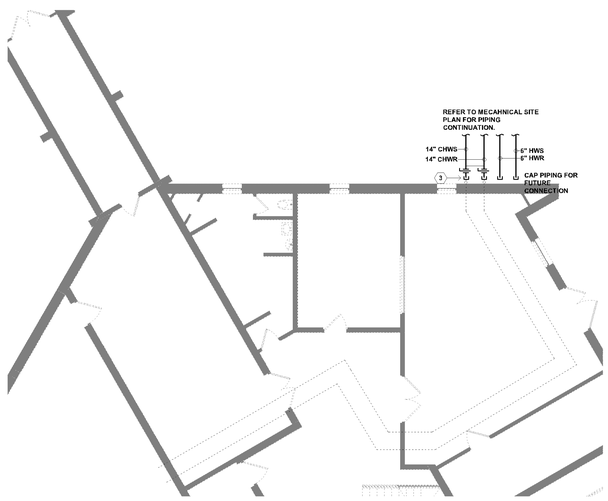
DEMOLITION PLAN KEYED NOTES:

1. REMOVE EXISTING CONDENSER WATER PIPING AND ALL ASSOCIATED COMPONENTS, HANGERS AND SUPPORTS.
2. REMOVE EXISTING CHILLER AND ALL ASSOCOATED COMPONENTS AND CONTROLS.
3. REMOVE EXISTING CHILLED WATER PIPING AND ALL ASSOCIATED COMPONENTS, HANGERS AND SUPPORTS.

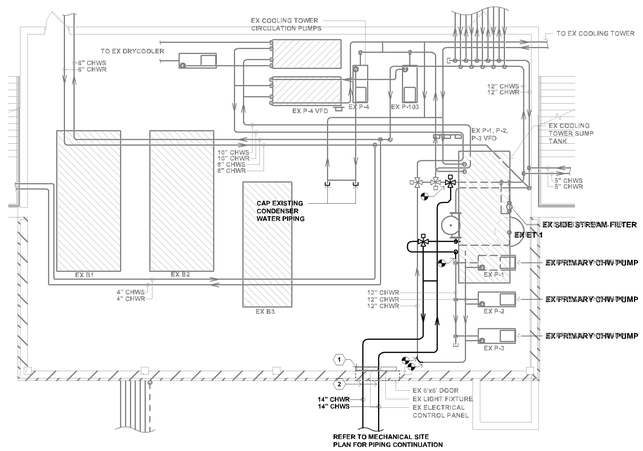
D2 UNDERGROUND PIPING DETAIL WITH BYPASS
NOT TO SCALE

D5 STEEL TO HDPE FLANGE CONNECTION DETAIL
NOT TO SCALE

D6 PIPE CONNECTION AT EXTERIOR WALL
NOT TO SCALE



F2 OLSON NEW WORK PLAN
1/8" = 1'-0"



F5 JEFFERSON BOILER ROOM NEW WORK PLAN
1/8" = 1'-0"

BOILER ROOM PLAN GENERAL NOTES:

1. ALL RISES AND DROPS IN DUCTWORK ARE NOT NECESSARILY SHOWN. LAYOUT ROUTING AND COORDINATE WORK WITH OTHER TRADES BEFORE CONSTRUCTION.

2. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF CONSTRUCITON UNLESS OTHERWISE NOTED ON THE PLANS. NO CUTTING OF STRUCTURAL MEMBERS OR STRUCTURE WHICH WILL DETERIORATE THE INTEGRITY AND STRENGTH OF THE BUILDING WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

3. MECHANICAL CONTRACTOR SHALL DETERMINE LIMITATIONS AND/OR CONFLICTS RELATIVE TO THE EXECUTION OF HIS WORK PRIOR TO BID. VERIFY EXACT DETAIL OF INSTALLATION REQUIRED TO PROVIDE SYSTEMS SHOWN WITHIN SPACE INTENDED.

4. VERIFY EXACT LOCATIONS OF FLOOR DRAINS WITH ARCHITECTURAL PLANS.

5. SLEEVE AND FIRESTOP ALL PIPE PENETRATIONS THROUGH FIRE RATED WALLS.

6. REFER TO ARCHITECTURAL PLANS FOR CONCRETE CURBS AND PADS. COORDINATE EXACT SIZES AND LOCATIONS.

7. VARIABLE FREQUENCY DRIVES ARE PROVIDED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

8. REFER TO ARCHITECTURAL PLANS FOR WALL LOUVERS. COORDINATE LOUVER SIZES, LOCATIONS, AND BLANK-OFF PANELS.

9. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED REINFORCEMENT OF NEW AND EXISTING STRUCTURAL MEMBERS FOR MECHANICAL SYSTEMS. REFER TO "MECHANICAL SUPPORT REINFORCEMENT DETAIL" FOR ADDITIONAL REQUIREMENTS.

BOILER ROOM PLAN KEYED NOTES:

1. REMOVE AND RELOCATE ELECTRICAL CONTROL PANEL TO ALLOW CLEARANCE FOR CHILLED WATER PIPING INSTALLATION.
2. REFER TO DETAIL FOR PIPING PENETRATION DETAIL AT WALL.
3. REFER TO DETAIL AND FOR PIPING PENETRATION DETAIL AT WALL.

M

CD ESTIMATE
NOT FOR CONSTRUCTION

Jefferson-Olson Mechanical Plant

4001 West 102cn Street
Bloomington, MN 55437

Independent School District #271
1350 West 106th Street
Bloomington, MN 55431

Wold

WOLD ARCHITECTS AND ENGINEERS
332 Minnesota Street, Suite W2000
Saint Paul, MN 55101

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Check: JWM

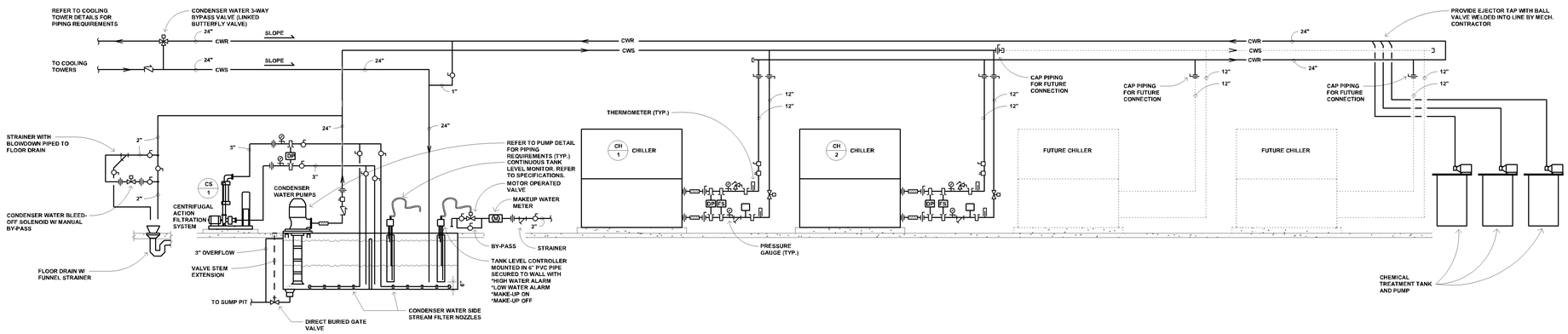
North

JEFFERSON BOILER PLAN

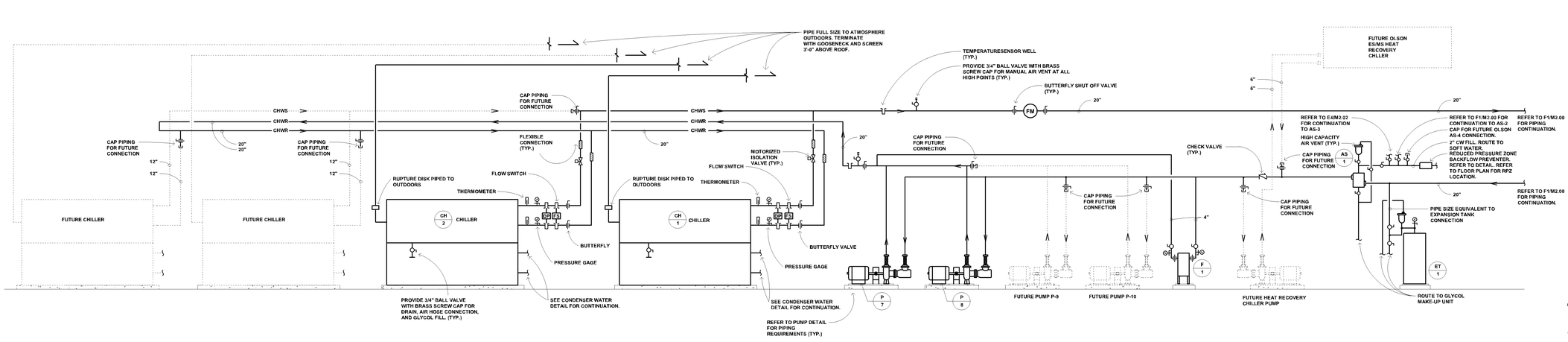
Scale: 1/8" = 1'-0"

M1.04

MN



C1 CONDENSER WATER PIPING SCHEMATIC
1/8" = 1'-0"



E1 CHILLED WATER PIPING SCHEMATIC
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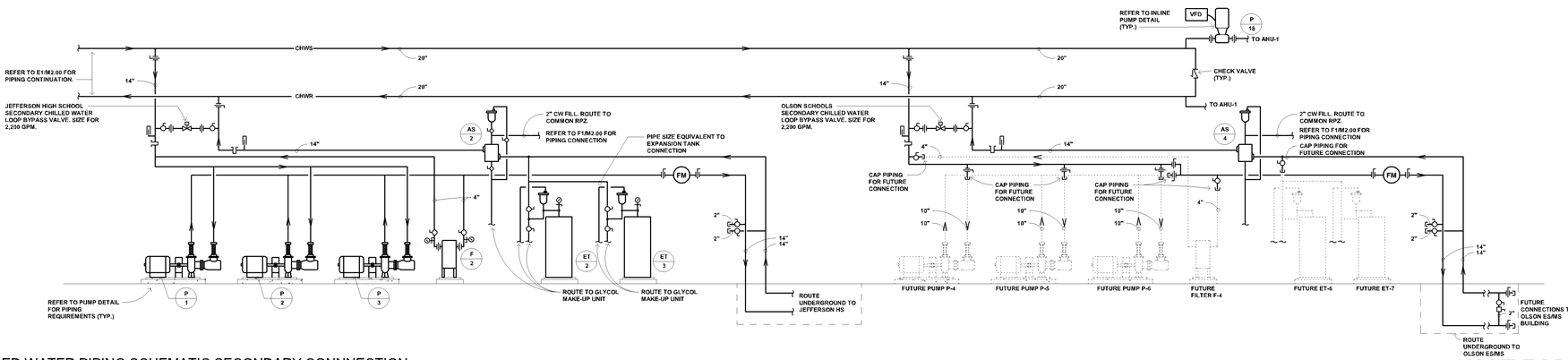

F1 CHILLED WATER PIPING SCHEMATIC SECONDARY CONNNECTION
1/8" = 1'-0"

M

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CHILLER WATER PLANT SCHEMATICS

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

M2.00

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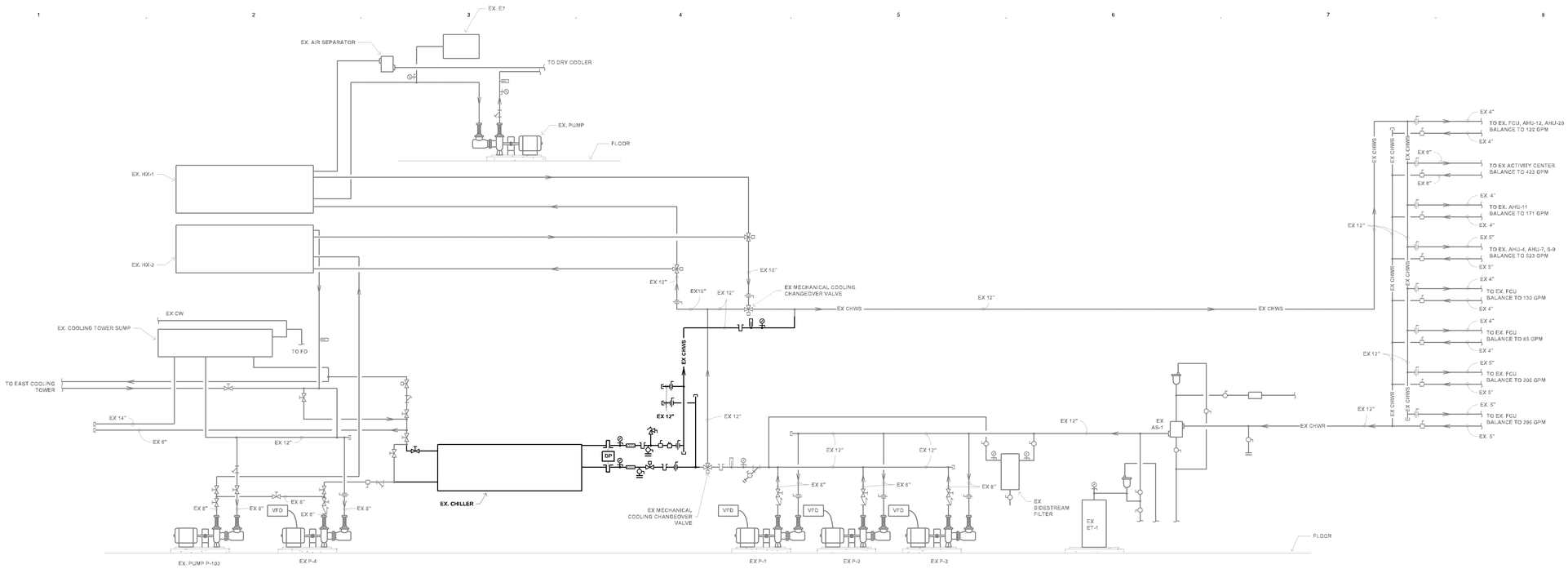
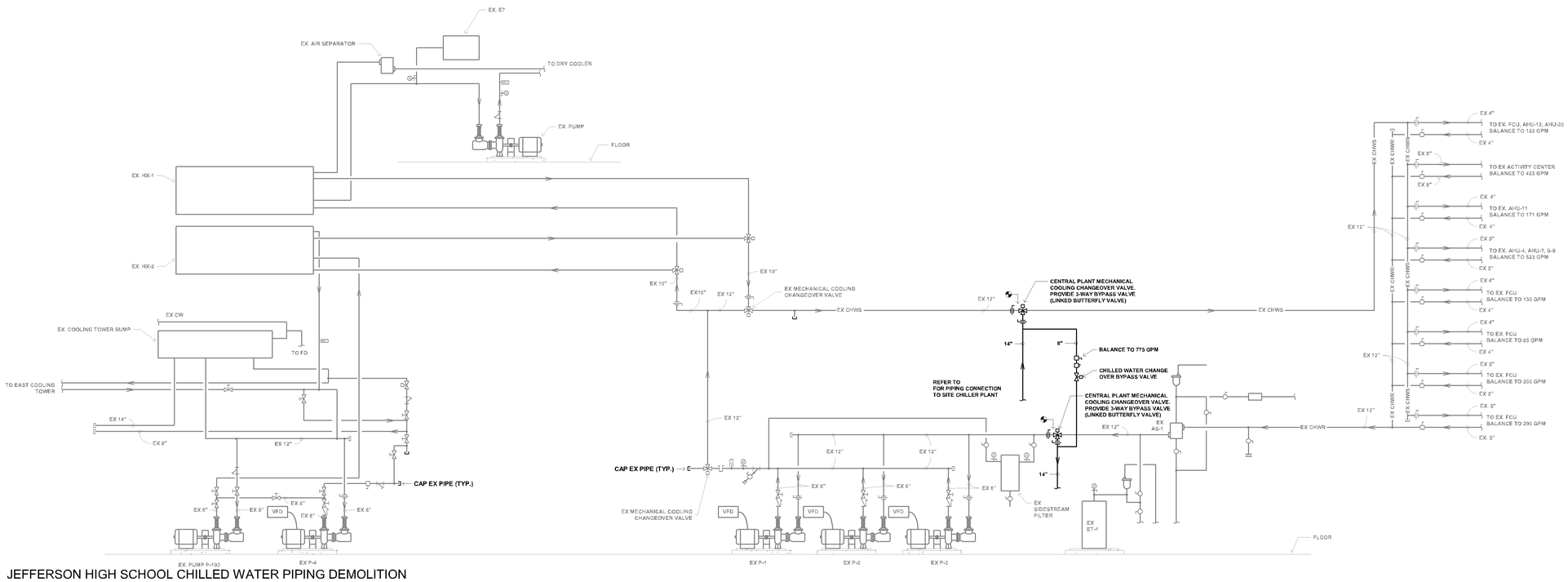


C1 JEFFERSON HIGH SCHOOL CHILLED WATER PIPING DEMOLITION SCHEMATIC
NOT TO SCALE



F1 JEFFERSON HIGH SCHOOL CHILLED WATER PIPING DEMOLITION SCHEMATIC Copy 1
1/8" = 1'-0"

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JEFFERSON HIGH SCHOOL CHILLER ROOM SCHEMATICS

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

CD ESTIMATE
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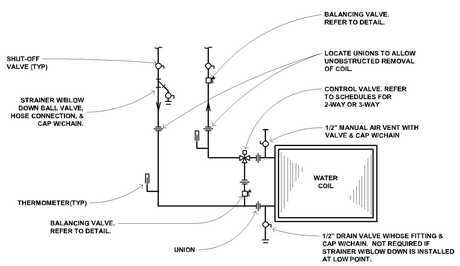
M2.01

MN



B1 WATER COIL TYPE A PIPING
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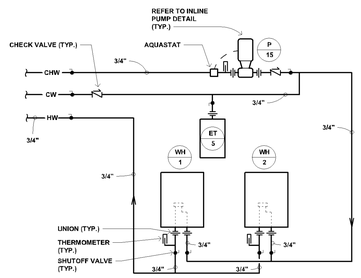

B2 DOMESTIC WATER HEATER PIPING SCHEMATIC
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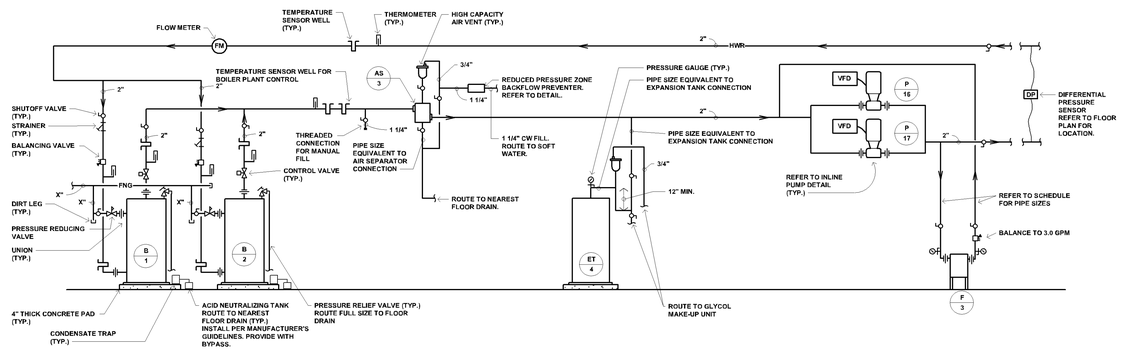

B4 HEATING WATER PIPING SCHEMATIC (GLYCOL)
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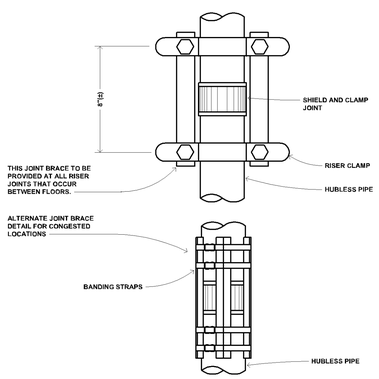

D1 P-14 HUBLESS PIPE RISER DETAIL
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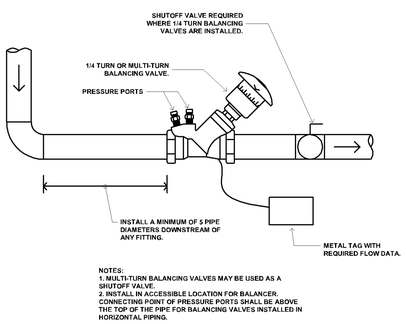

D2 BALANCING VALVE DETAIL
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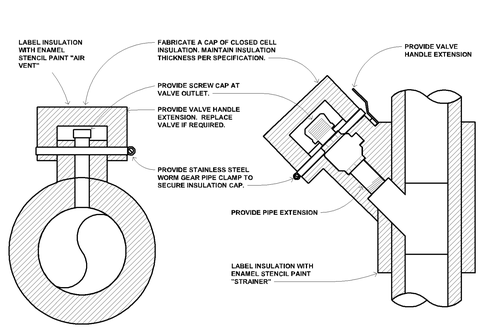

D4 P-41 TYPICAL AIR VENT & STRAINER DETAIL
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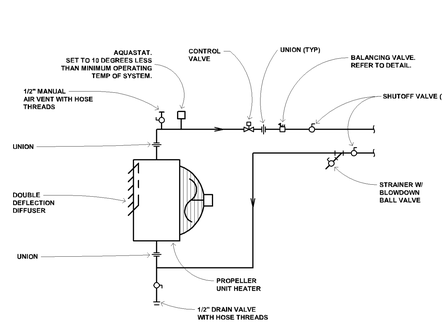

D6 PROPELLER UNIT HEATER PIPING DETAIL
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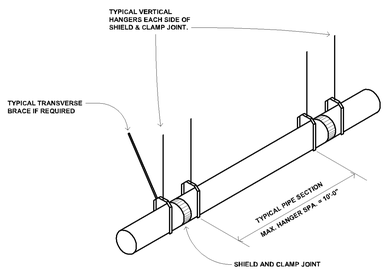

E1 HUBLESS PIPE INSTALLATION DETAIL
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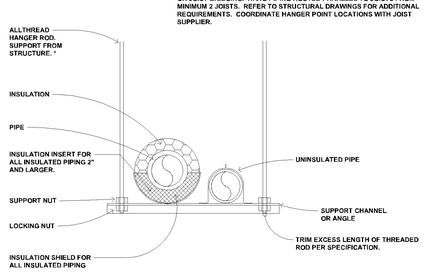

E2 TRAPEZE PIPE HANGER DETAIL
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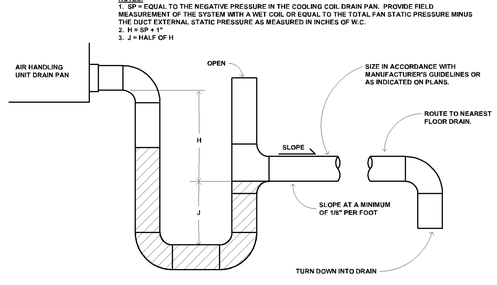

E4 DRAW-THRU CONDENSATE DRAIN
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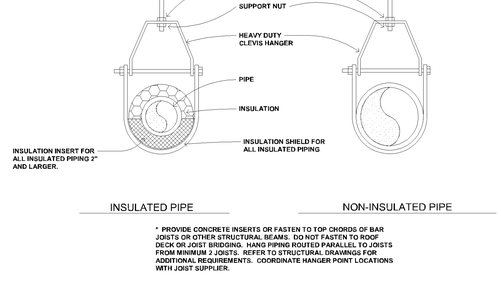

E6 CLEVIS PIPE HANGER DETAIL
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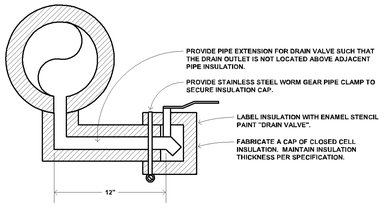

F1 TYPICAL DRAIN VALVE DETAIL
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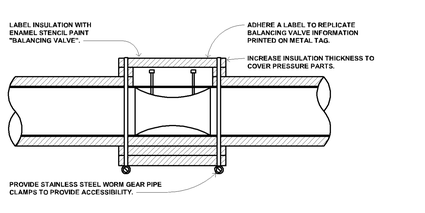

F2 TYPICAL FLOW FITTING DETAIL
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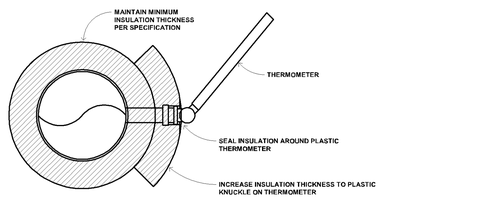

F4 TYPICAL THERMOMETER DETAIL
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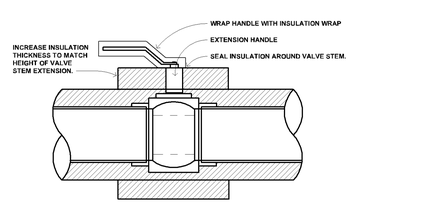

F6 TYPICAL VALVE DETAIL
NOT TO SCALE

M

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Joseph Matlock
Date

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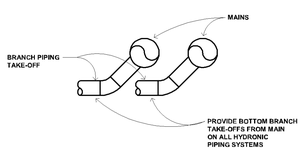
North

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

MECHANICAL SCHEMATICS AND DETAILS

M3.00

MN



B1 HYDRONIC BRANCH PIPING TAKE-OFF DETAIL
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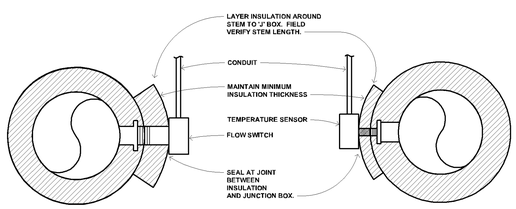

B2 TYPICAL FLOW SWITCH & TEMP. SENSOR DETAIL
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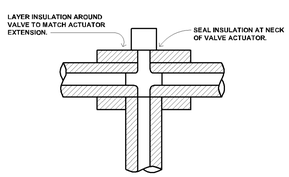

B4 TYPICAL CONTROL VALVE DETAIL
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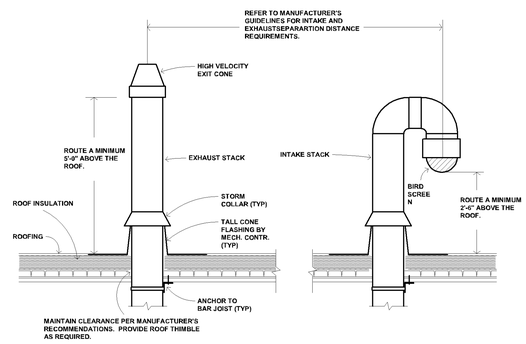
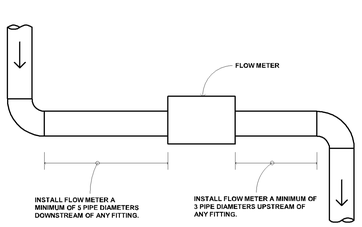


B6 HIGH EFFICIENCY BOILER EXHAUST/INTAKE VENT DETAIL
NOT TO SCALE



C1 FLOW METER DETAIL
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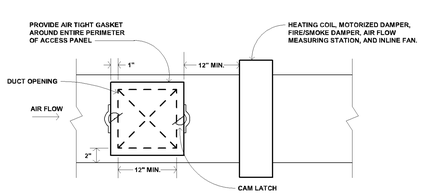
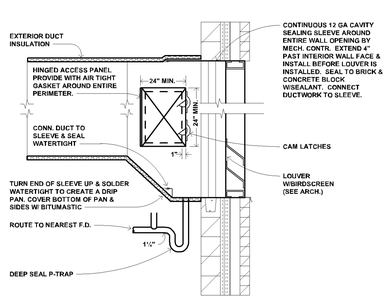


C2 ACCESS PANEL DETAIL
NOT TO SCALE



C4 LOUVER INSTALLATION DETAIL
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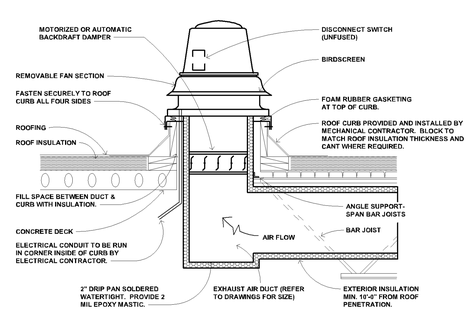

C6 TYPICAL P.R.V. EXHAUST FAN DETAIL
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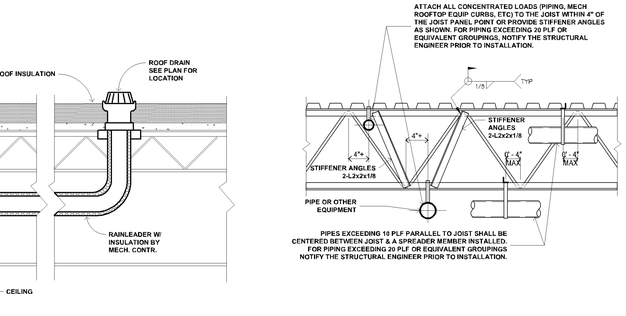

E1 RAINWATER LEADER NOZZLE OUTLET DETAIL
NOT TO SCALE

E2 MECHANICAL SUPPORT REINFORCEMENT DETAIL
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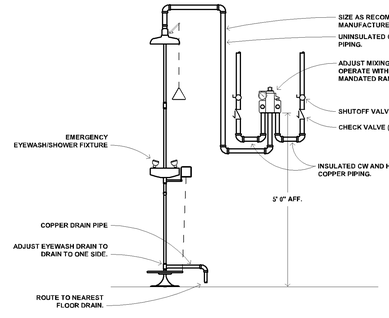

E4 EMERGENCY EYEWASH/SHOWER DETAIL
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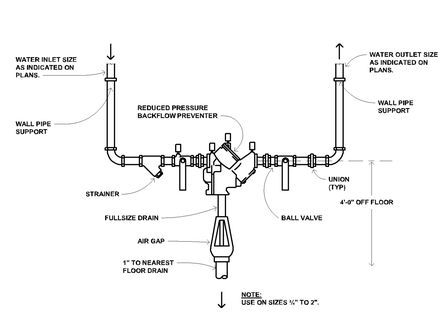
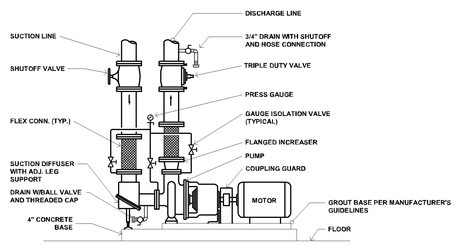


E6 REDUCED PRESSURE BACKFLOW PREVENTER DETAIL
NOT TO SCALE



F1 BASE MOUNTED PUMP PIPING DETAIL
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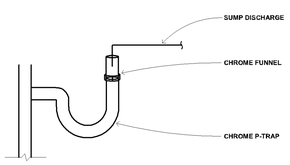

F2 STAND PIPE DETAIL
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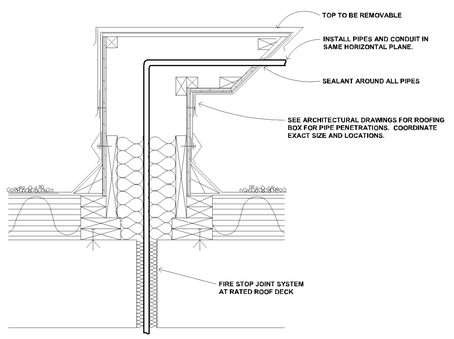

F4 ROOF PIPE PENETRATION DETAIL
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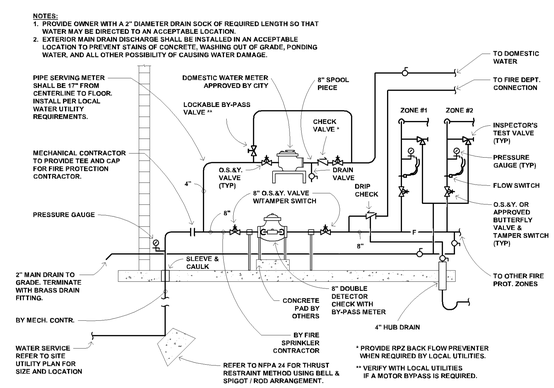

F6 FIRE PROTECTION AND DOMESTIC WATER DETAIL
NOT TO SCALE

M

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Check: JWM

North

MECHANICAL DETAILS

Scale: As indicated

M3.01

AIR HANDLING UNIT SCHEDULE (AHU "X")

UNIT NO.	SERVES	MANUFAC.	MODEL NO.	UNIT TYPE	TOTAL CFM	OUTDOOR AIR			SUPPLY FAN											COOLING COIL							HEATING COIL									REMARKS
						CO2 MIN	CO2 MAX	ECON	FAN #	SYSTEM DESIGN CFM	FAN TYPE	FAN SIZE	TOTAL S.P.	EXTERNAL S.P.	RPM	SYSTEM DESIGN BHP	MAX BHP	MOTOR HP	VFD	VOLTS/PH	COIL TYPE	PIPING TYPE	COIL #	ENT AIR DB/WB	LVG AIR DB/WB	SENS. MBH	TOTAL MBH	TOTAL GPM	CONTROL VALVE	COIL TYPE	PIPING TYPE	COIL #	ENT AIR	LVG AIR	SENS. MBH	TOTAL MBH	TOTAL GPM	CONTROL VALVE	
AHU-1	CHILLER PLANT	JOHNSON CONTROLS	XTI-39X45	OA	4,025	1,945	1,945	4,025	AHU-1: SF-1	4,025				0.70"		2.67		5.0		480/3			AHU-1: CC-2						3-WAY		HW	AHU-1: HC-1						3-WAY

FILTERS		
	PRE TYPE	FINAL TYPE
MERV-	MERV-	

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. SMOKE DETECTORS ARE PROVIDED BY ELECTRICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE EXACT LOCATIONS.
3. REFER TO DETAIL SHEETS FOR COIL PIPING CONNECTIONS.
4. REFER TO SECTIONS OF UNITS ON MECHANICAL ROOM SHEETS FOR UNIT COMPONENTS.
5. ENTERING HOT WATER TEMPERATURE IS XXX° F, LEAVING TEMPERATURE IS XXX° F. UNIT IS SELECTED BASED ON XX% (ETHYLENE) (PROPYLENE) GLYCOL.
6. ENTERING CHILLED WATER TEMPERATURE IS XX° F, LEAVING TEMPERATURE IS XX° F. UNIT IS SELECTED BASED ON XX% (ETHYLENE) (PROPYLENE) GLYCOL.
7. PROVIDE ACCESS SECTION BETWEEN HEATING AND COOLING COILS.
8. SUPPLY AND RETURN/RELIEF FANS INDICATED ARE CONTROLLED BY VARIABLE FREQUENCY DRIVES PROVIDED BY THE BUILDING AUTOMATION SYSTEM CONTRACTOR. ALL VARIABLE FREQUENCY DRIVES FOR THE ENTIRE PROJECT SHALL BE BY THE SAME MANUFACTURER.
9. PROVIDE INTERTWINED CIRCUITING ON DX COIL.
10. PROVIDE UNIT WITH MINIMUM 6" BASERAIL. PROVIDE ADDITIONAL BASERAIL HEIGHT AS REQUIRED SUCH THAT THE CONDENSATE DRAIN CONNECTION IS AT LEAST X" ABOVE THE FINISHED FLOOR. REFER TO THE PLANS FOR THE CONCRETE PAD HEIGHT. REFER TO THE CONDENSATE DRAIN PIPING DETAIL.
11. REFER TO THE ENERGY RECOVERY UNIT SCHEDULE FOR THE ASSOCIATED ENERGY RECOVERY SECTION OF THE AIR HANDLING UNIT.

BOILER SCHEDULE (B "X")

UNIT NO.	MANUFACTURER	MODEL NUMBER	TYPE	FUEL	FIRING RATE MBH/GPH	GROSS OUTPUT MBH	VOLTS	PHASE	REMARKS
B-1	AERCO	AM 199RI		NAT. GAS	199.9	190.0	120	1	
B-2	AERCO	AM 199RI		NAT. GAS	199.9	190.0	120	1	

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

CHILLER SCHEDULE - WATER COOLED (CH "X")

UNIT NO.	MANUFAC.	MODEL NO.	CAPACITY (TONS)	EVAPORATOR					REF. TYPE	LBS. OF REF.	COMPRESSORS		CONDENSER					ELECTRICAL				FL/IPLV @ DESIGN CONDITIONS	FL/IPLV @ AHRI CONDITIONS	REMARKS
				# OF PASSES	EWT (°F)	LWT (°F)	MIN/DESIGN/MAX FLOW (GPM)	MAX P.D.			NUMBER	TYPE	# OF PASSES	EWT (°F)	LWT (°F)	MIN/NOM/MAX FLOW (GPM)	MAX P.D.	TOTAL KW	VOLTS	PHASE	MCA			
CH-1	DAIKIN		600							1514									480	3	614			
CH-2	DAIKIN		600							1514									480	3	614			
CH-3																			480	3	614			
CH-4																			480	3	614			
CH-5																								

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. UNIT IS SELECTED BASED ON XX% (ETHYLENE) (PROPYLENE) GLYCOL.
3. PROVIDE CHILLER WITH MARINE WATER BOXES AS REQUIRED FOR ALL PIPING CONNECTIONS TO CONDENSER AND EVAPORATOR.
4. PROVIDE WITH SINGLE POINT POWER AND DISCONNECT.
5. MAXIMUM CHILLER SOUND POWER LEVELS (dB) SHALL NOT EXCEED TABLE.

OCTAVE BAND AND CENTER FREQUENCY, HZ								
63	125	250	500	1000	2000	4000	8000	OVERALL A WTD

COOLING TOWER SCHEDULE (CT "X")

UNIT NO.	SERVES	MANUFAC.	MODEL NO.	NO. OF MODULES	NOMINAL TONS	CFM	MIN DESIGN FLOW (GPM)	MAX DESIGN FLOW (GPM)	OUTSIDE AIR TEMP (DB/WB)	EWT	LWT	WATER CONNECTIONS					FANS					OPER. WT. (LBS.)	REMARKS
												INLET	OUTLET	MAKE-UP	OVERFLOW	DRAIN	NUMBER	H.P.	VOLTS	PHASE	VFD		
CT-1	CHILLER	BALTIMORE AIRCOIL CO.	S3E-1222-07P		750	149,539		1,809		95.0	85.0						1	49	480	3		25,360	
CT-2	CHILLER	BALTIMORE AIRCOIL CO.	S3E-1222-07P		750	149,539		1,809		95.0	85.0						1	49	480	3		25,360	
CT-3																		49	480	3			
CT-4																		49	480	3			

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. FURNISH AND INSTALL VIBRATION ISOLATION RAIL SYSTEM WITH 3" STATIC DEFLECTION. MOUNT AS INDICATED ON COOLING TOWER SUPPORTS BY OTHERS.
3. TEMPERATURE CONTROLS CONTRACTOR TO FURNISH AND INSTALL VFD. HIGH VOLTAGE WIRING BY DIVISION 26 CONTRACTOR. ALL VFD SHALL BE BY THE SAME MANUFACTURER.
4. PROVIDE COOLING TOWER WITH SINGLE CONDENSER WATER CONNECTION. ALL INTERNAL PIPING FROM CONNECTION TO HOT WATER BASINS SHALL BE FACTORY PROVIDED. ALL COOLING TOWER PIPING CONNECTIONS SHALL BE FLANGED.

PUMP SCHEDULE (P "X")

UNIT NO.	SERVES	LOCATION	MANUFACTURER	SERIES	MODEL NUMBER	TYPE	DESIGN GPM	DESIGN HEAD	50% FLOW HEAD	SHUTOFF HEAD	IMP. SIZE	EFF.	SUC. SIZE	DISCH. SIZE	MOTOR				REMARKS
															RPM	H.P.	VOLTS	PHASE	
P-1	JEFFERSON HS						1,100	175								75	480	3	
P-2	JEFFERSON HS						1,100	175								75	480	3	
P-3	JEFFERSON HS						1,100	175								75	480	3	
P-4	FUTURE OLSON ES/MS						1,100	100								50	480	3	
P-5	FUTURE OLSON ES/MS						1,100	100								50	480	3	
P-6	FUTURE OLSON ES/MS						1,100	100								50	480	3	
P-7	CENTRAL PLANT PRIM.						1,500	50								30	480	3	
P-8	CENTRAL PLANT PRIM.						1,500	50								30	480	3	
P-9	FUTURE CENTRAL PLANT PRIM.						1,500	50								30	480	3	
P-10	FUTURE CENTRAL PLANT PRIM.						1,500	50								30	480	3	
P-11	CONDENSER SUMP						1,800	100								100	480	3	
P-12	CONDENSER SUMP						1,800	100								100	480	3	
P-13	CONDENSER SUMP						1,800	100								100	480	3	
P-14	CONDENSER SUMP						1,800	100								100	480	3	
P-15	CIRCULATING HOT WATER															0.25			
P-16	PLANT HEATING SYSTEM							28	45							1.5			
P-17	PLANT HEATING SYSTEM							28	45							1.5			
P-18	AHU CHILLED WATER COIL							11	10							0.25			

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE AND INSTALL A STRAP-ON LINE VOLTAGE AQUASTAT TO CYCLE PUMP. COORDINATE INSTALLATION WITH THE ELECTRICAL CONTRACTOR FOR WIRING.
3. VARIABLE FREQUENCY DRIVES SHALL BE PROVIDED BY THE BUILDING AUTOMATION SYSTEM CONTRACTOR. ALL VARIABLE FREQUENCY DRIVES FOR THE ENTIRE PROJECT SHALL BE BY THE SAME MANUFACTURER.

SUMP PUMP SCHEDULE (SP "X")

UNIT NO.	LOCATION	MANUFAC.	MODEL NO.	SIZE	CONS.	INLET SIZE	OUTLET SIZE	PUMP GPM	PUMP HEAD	ELECTRICAL REQUIREMENTS										REMARKS
										POWER			FANS					CONTROL		
										HP	VOLTS	PHASE	FLA	TYPE	SIZE	LOCATION	DIV. NO.	TYPE	DIV NO.	
SP-1	CENTRAL PLANT	WEIL				4"	2"	56	19'	0.5	120	1	12.0							

NOTES:
1. PROVIDE WITH VIBRATION ISOLATORS.
2. MOTORS SHALL BE 2-SPEED, 2 WINDING FOR 2-STAGE CONTROL.
3. DRAIN PAN SHALL BE CONSTRUCTED OF STAINLESS STEEL.

AIR SEPARATOR SCHEDULE (AS "X")

UNIT NO.	SERVES	MANUFACTURER	MODEL NUMBER	MAX. GPM	INLET/OUTLET SIZE	BLOWDOWN SIZE	REMARKS
AS-1	PRIMARY CHILLER LOOP	BELL AND GOSSETT	R-16F	5915.0	16"		
AS-2	JEFFERSON CHILLER LOOP	BELL AND GOSSETT	R-12F	2759.0	12"		
AS-3	HEATING WATER SYSTEM	BELL AND GOSSETT	R-4F	330.0	4"		
AS-4	OLSON CHILLER LOOP	BELL AND GOSSETT	R-12F	2759.0	12"		

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE AUTOMATIC AIR VENT PIPED TO NEAREST FLOOR DRAIN.

EXPANSION TANK SCHEDULE (ET "X")

UNIT NO.	SERVES	MANUFACTURER	MODEL NUMBER	TANK TYPE	AVERAGE WATER TEMP.	MINIMUM PRECHARGE PRESS (PSIG)	MAXIMUM OPER. PRESSURE (PSIG)	TANK VOLUME (GALLONS)	ACCEPTANCE VOLUME (GALLONS)	TANK HEIGHT	TANK DIA.	REMARKS
ET-1	PRIMARY CHILLER LOOP	BELL AND GOSSETT	B-300	BLADDER	50.0	12.0	30.0	80.0	22.5	51	24	
ET-2	JEFFERSON HS LOOP	BELL AND GOSSETT	B-2000	BLADDER	50.0	12.0	30.0	528.0	528.0	84	48	
ET-3	JEFFERSON HS LOOP	BELL AND GOSSETT	B-2000	BLADDER								
ET-4	PLANT HEATING	BELL AND GOSSETT	D-15V	BLADDER	120.0	12.0	60.0	8.0	2.4	20	12	
ET-5	DOM HEATING LOOP	BELL AND GOSSETT										
ET-6	FUTURE OLSON LOOP											
ET-7	FUTURE OLSON LOOP											

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE AUTOMATIC AIR VENT PIPED TO NEAREST FLOOR DRAIN.

SIDE STREAM FILTER SCHEDULE (F "X")

UNIT NO.	SERVES	MANUFACTURER	MODEL NO.	DESIGN FLOW RATE (GPM)	MAXIMUM FLOW RATE (GPM)	CONNECTION SIZE	MAXIMUM PRESSURE DROP (PSI)	REMARKS
F-1	CHILLED WATER PRIMARY	WESSELS	4NBF12-4F	140-300	640	4"	0.75	1, 2, 3
F-2	JEFFERSON CHILLED WATER	WESSELS	4NBF12-4F	140-300	640	4"	0.75	1, 2, 3
F-3	HEATING WATER SYSTEM	WESSELS	4NBF12-2F	0-60	160	2"	0.75	1, 2, 3

NOTES:
1. FIELD INSTALLED ACCESSORIES INCLUDE AT A MINIMUM PRESSURE GAUGES ON THE INLET/OUTLET, ISOLATION SHUTOFF VALVES, UNION CONNECTIONS, AND A BALANCING VALVE FOR THE FLOW INDICATED.
2. THE MECHANICAL CONTRACTOR SHALL VERIFY INLET AND OUTLET CONFIGURATION.
3. MAXIMUM PRESSURE DROP IS BASED UPON A 5 MICRON CLEAN FILTER.

EXHAUST FAN AND TRANSFER FAN SCHEDULE (EF "X", TF "X")

UNIT NO.	SERVES	LOCATION	MANUFACTURER	MODEL NO.	TYPE	CFM	TOTAL S.P. W.C.	DRIVE	EC MOTOR	RPM	HP	VOLTS/ PHASE	MAKE-UP AIR SOURCE	MOTORIZED DAMPER	CONTROL				REMARKS
															BAS TIME OF DAY	BAS TIMED PUSH BUTTON	BAS TEMPERATURE SENSOR	OTHER - REFER TO SPECIFICATION	
EF-1	CHILLER PLANT PURGE	ROOF	COOK	245 ACEB		4,025	0.5				0.75	120/1							

NOTES:
1. 120/1 VOLT FANS SHALL BE PROVIDED WITH A FACTORY MOUNTED DISCONNECT SWITCH.
2. 120/1 VOLT FANS THAT ARE NOT PROVIDED WITH SPEED ADJUSTABLE EC MOTORS SHALL HAVE A FACTORY MOUNTED SPEED SWITCH IN MOTOR COMPARTMENT FOR BALANCING.
3. PROVIDE WITH A GRAVITY BACK DRAFT DAMPER UNLESS A MOTORIZED DAMPER IS INDICATED TO BE PROVIDED.
4. WHERE MOTORIZED DAMPERS ARE INDICATED, THE DAMPERS AND ACTUATORS SHALL BE PROVIDED BY THE BAS CONTRACTOR AND INSTALLED BY DIV 23 CONTRACTOR.
5. PROVIDE WITH VARIABLE SPEED DRIVE. INSTALLED BY DIV 26. COORDINATE INSTALLATION LOCATION.
6. INLINE FANS SHALL BE PROVIDED HANGER TYPE VIBRATION ISOLATORS.

UNIT HEATER SCHEDULE (UH "X")

UNIT NO.	SERVES	MANUFACTURER	MODEL NUMBER	TYPE (GAS, HW OR ELEC)	CABINET	CFM	RPM	HP	VOLTS	PHASE	MBH	GPM	REMARKS
UH-1								1/3	120	1	54.4	4.6	
UH-2								1/3	120	1	54.4	4.6	

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. UNITS ARE SELECTED WITH 180 DEGREE ENTERING WATER AND 140 DEGREE LEAVING WATER WITH A 60 DEGREE ENTERING AIR TEMPERATURE.
3. UNITS SHALL BE VERTICAL WALL MOUNTED WITH BOTTOM INLET AND TOP OUTLET.
4. SEMI-RECESSED WITH 2 1/2" EXPOSED CABINET.

DOMESTIC WATER HEATER SCHEDULE (WH "X")

UNIT NO.	SERVES	MANUFACTURER	MODEL NUMBER	TYPE (GAS OR ELEC)	MBH INPUT	STORAGE CAP. (GALLONS)	GPH RECOVERY @ 100° RISE	WATER TEMP.	VENT SIZE	VOLTS	PHASE	MOTOR HP	REMARKS
WH-1		NAVIEN	NPE-240A	NAT. GAS	199.9					120	1	200W	
WH-2		NAVIEN	NPE-240A	NAT. GAS	199.9					120	1	200W	

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE WITH ASME RATED PRESSURE/TEMPERATURE RELIEF VALVE.
3. PROVIDE WITH SINGLE POINT ELECTRICAL CONNECTION.
4. PROVIDE WITH INLET AND OUTLET MANIFOLD KIT FOR MULTIPLE HEATER INSTALLATION.

CENTRIFUGAL SEPARATOR SCHEDULE (CS "X")

UNIT NO.	SERVES	MANUFACTURER	MODEL NO.	SEPARATOR MODEL NUMBER	DESIGN FLOW RATE (GPM)	MAXIMUM FLOW RATE (GPM)	HP	VOLTS	PHASE	REMARKS
CS-1	CONDENSER WATER LOOP	LAKOS			720	810	15	480	1	1,2

NOTES:
1. INSTALL IN ACCORDINACE WITH MANUFACTURER WRITTEN INSTRUCTIONS.
2. PROVIDE COMPLETE FACTORY PACKAGED SKID MOUNTED SYSTEM INCLUDING SEPARATOR, CIRCULATING PUMPS, SOLIDS COLLECTION VESSEL, AND CONTROL PANEL COMPLETE WITH STARTER AND DISCONNECT.

GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

TYPE	SERVICE	MANUF. & MODEL NO.	DESCRIPTION	REMARKS
A	SUPPLY REGISTER (SURFACE MOUNT)	TITUS MODEL 300RL	ALL STEEL SUPPLY REGISTER OF THE SIZE AS INDICATED ON THE PLANS. PROVIDE WITH DOUBLE DEFLECTION HORIZONTAL FRONT BLADES, ¾" SPACING, OPPOSED BLADE DAMPER, AND BAKED WHITE ENAMEL FINISH.	
B	RETURN, EXHAUST, TRANSFER GRILLE (SURFACE MOUNT)	TITUS MODEL 350RL	ALL STEEL EXHAUST REGISTER OF THE SIZE AS INDICATED ON THE PLANS. PROVIDE WITH SINGLE DEFLECTION HORIZONTAL BLADES AT A FIXED 35° PATTERN AT ¾" SPACING, OPPOSED BLADE DAMPER, AND FACTORY BAKED WHITE ENAMEL FINISH.	

PLUMBING FIXTURE SCHEDULE

FIX. NO.	FIXTURE TYPE	WASTE	VENT	CW	HW	VACUUM	LAB GASES			REMARKS
							AIR	NAT. GAS	OTHER	
P-1	SERVICE SINK	3"	1 1/2"	3/4"	3/4"	-	-	-	-	-
P-2	EMERGENCY EYEWASH / SHOWER	-	-	1"	1"	-	-	-	-	-
P-3	HOSE BIBB	-	-	3/4"	-	-	-	-	-	-

Jefferson-Olson Mechanical Plant

4001 West 102cn Street
Bloomington, MN 55437

Independent School District #271
1350 West 106th Street
Bloomington, MN 55431

WOLD ARCHITECTS AND ENGINEERS
332 Minnesota Street, Suite W2000
Saint Paul, MN 55101
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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed PROFESSIONAL ENGINEER under the laws of the State of MINNESOTA

License Number: 57110 Joseph Matlock Date:

Revisions		
Description	Date	Num

Comm: 202115
Date: 3/31/2021
Drawn: NRN
Check: JWM

North

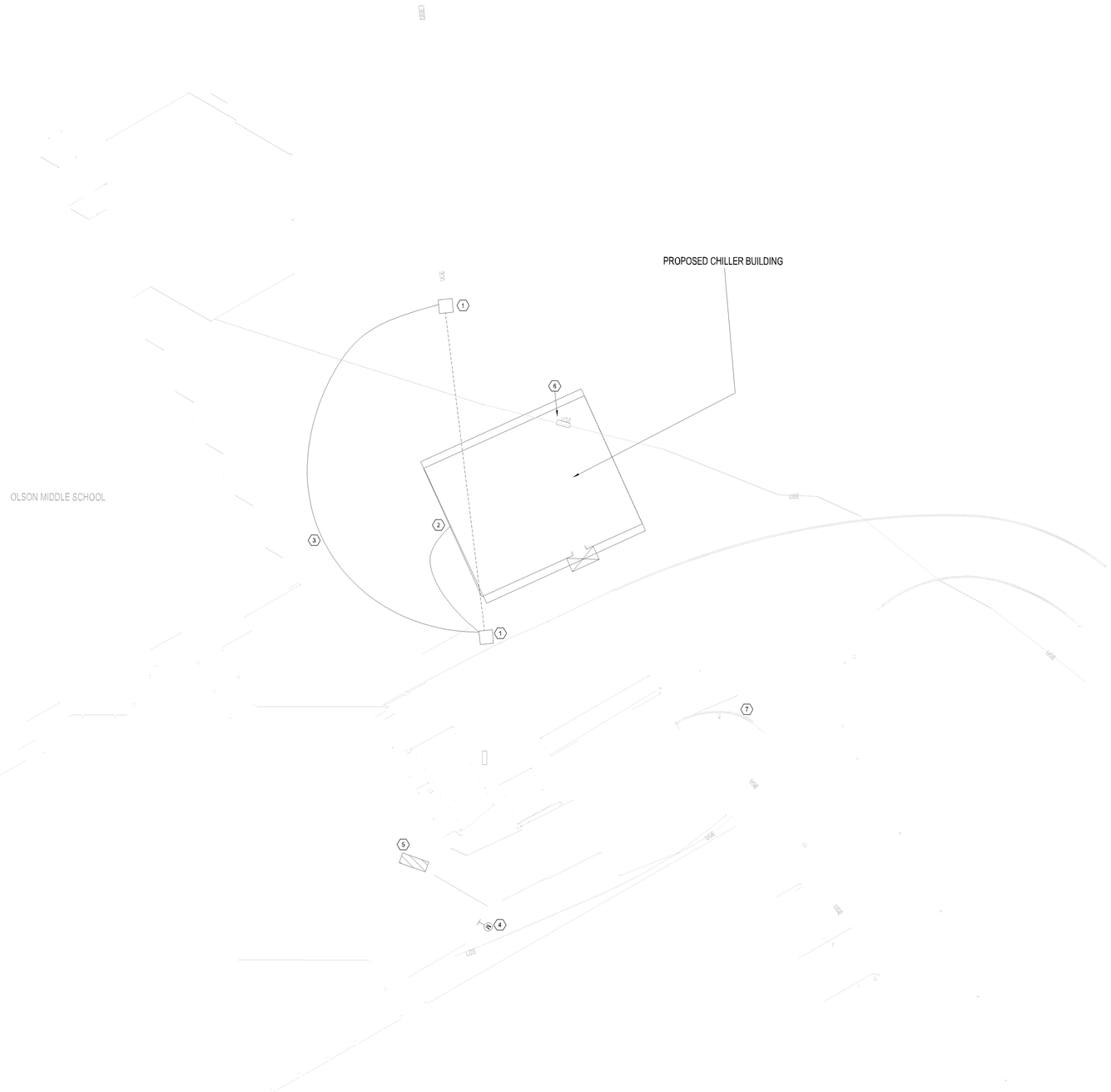
MECHANICAL SCHEDULES

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

CD ESTIMATE
NOT FOR CONSTRUCTION

M4.00

MN



F2 ELECTRICAL SITE PLAN
1" = 20'-0"

E

GENERAL SHEET NOTES

A. ALL LIGHTING AND POWER CONDUCTORS SHALL BE INSTALLED BETWEEN 24" (MINIMUM) AND 36" (MAXIMUM) BELOW FINISHED GRADE.
B. ALL COMMUNICATIONS CONDUIT AND CABLES SHALL BE INSTALLED 36" (MINIMUM) BELOW FINISHED GRADE.
C. ALL CONDUCTORS FOR EXTERIOR LIGHTING AND POWER CIRCUITS SHALL BE #10 AWG MINIMUM.
D. PROVIDE PVC-40 IN GREEN SPACES AND PVC-80 UNDER HARD SURFACES.
E. PROVIDE PULL WIRE IN ALL EMPTY CONDUITS.
F. PROVIDE DETECTABLE UNDERGROUND TAPE ABOVE EACH UNDERGROUND CONDUIT.
G. SET BACK CENTER OF POLE BASES 6 FEET FROM FACE OF CURB OR SIDEWALK.
H. SEE LIGHTING PLANS FOR EXACT LOCATIONS OF BUILDING MOUNTED LIGHTING.
I. HANDHOLES AND PULLBOXES MAY NOT BE INDICATED ON PLANS. PROVIDE AS REQUIRED FOR INSTALLATION.

KEYED SHEET NOTES

1. PROVIDE PULL BOX TO INTERCEPT CUSTOMER-OWNED MEDIUM VOLTAGE PRIMARY FEEDER. RELOCATE FEEDER AROUND FOOTPRINT OF NEW CHILLER BUILDING.
2. PREPARE PULL BOX TO FEED CHILLER BUILDING WITH MEDIUM VOLTAGE SERVICE. BACKFEED EXISTING OLSON MEDIUM VOLTAGE SERVICE. RELOCATE XCEL METER TO CHILLER BUILDING.
3. LOCATE PULL BOXES AND ROUTE FEEDER NEAR EXTENTS OF GRADING, WITH INTENT FOR FEEDER TO BE RELOCATED PRIOR TO START OF EXCAVATION EFFORT. COORDINATE EXACT LOCATIONS AND REQUIREMENTS WITH OTHER TRADES.
4. RELOCATE UTILITY METERING FROM OLSON SERVICE TO NEW CHILLER BUILDING SERVICE AS REQUIRED.
5. EXISTING OLSON MEDIUM VOLTAGE SERVICE SHOWN FOR REFERENCE.
6. RELOCATE LINE VOLTAGE PARKING LOT LIGHTING CIRCUIT TO BE OUTSIDE NEW BUILDING ENEVELOPE AS REQUIRED.
7. PROTECT AND SUPPORT UNDERGROUND PARKING LOT CIRCUITRY THIS AREA AS REQUIRED TO ACCOMMODATE WORK BY OTHERS AT WATER MAIN.

Jefferson High School Mechanical Chiller Plant
Enter Address Here

INDEPENDENT SCHOOL DISTRICT #271
Owner Address
Owner City, State

WOLD ARCHITECTS AND ENGINEERS
332 Minnesota Street, Suite W2000
Saint Paul, MN 55101
woldae.com | 651 227 7773

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly l censed **PROFESSIONAL ENGINEER** under the laws of the State of **MINNESOTA**

License Number: **43936** **BRADLEY R. JOHANNSEN** Date: **Issue Date**

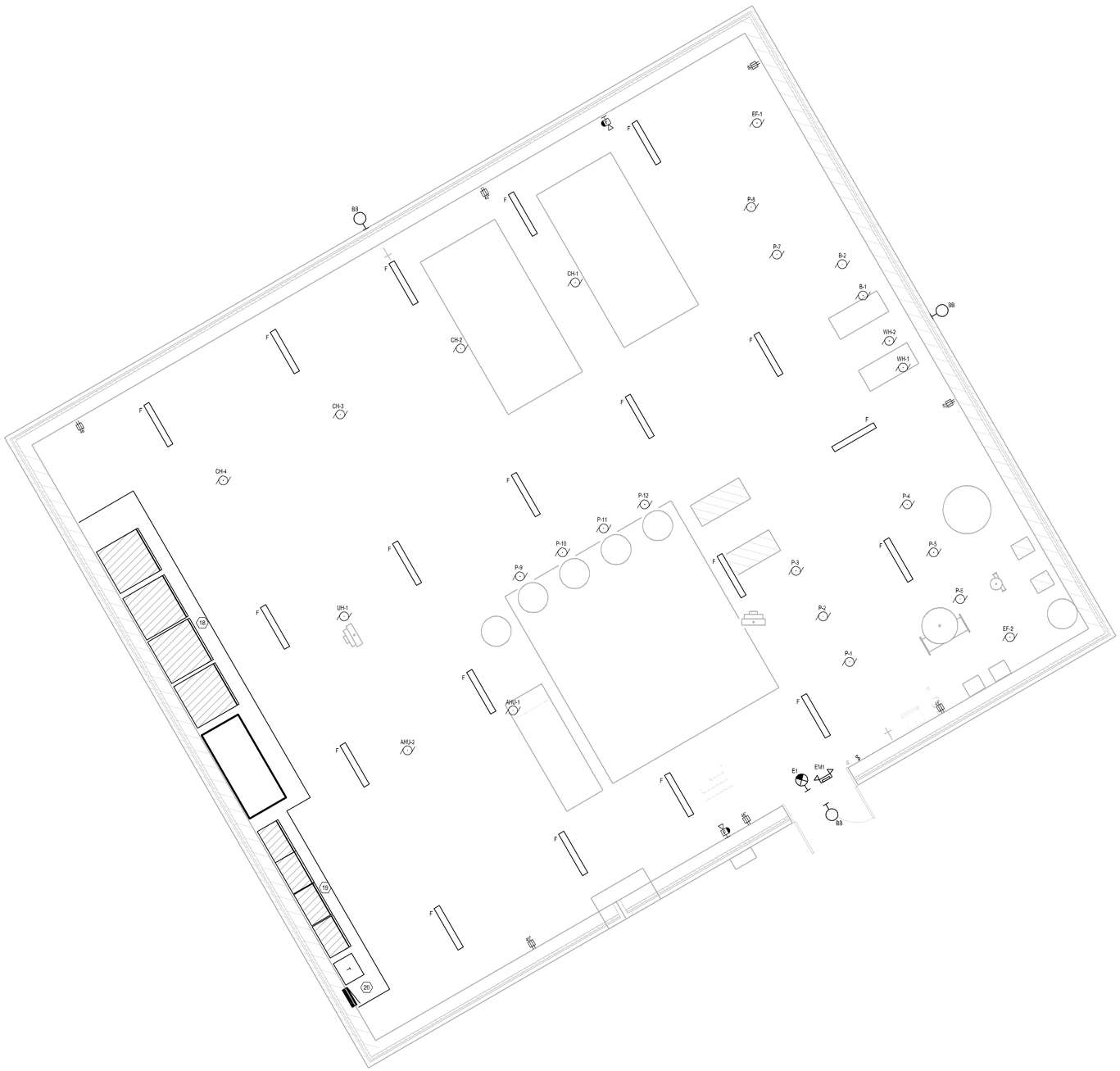
Revisions		
Description	Date	Num

Comm: **202115**
Date: **Issue Date**
Drawn: **GE**
Check: **BJ**
North

ELECTRICAL SITE PLAN

Scale: **As indicated**

E1.0



F2 ELECTRICAL CHILLER PLAN - MAIN LEVEL
1/4" = 1'-0"

GENERAL SHEET NOTES

A. ALL LIGHTING AND POWER CONDUCTORS SHALL BE INSTALLED BETWEEN 24" (MINIMUM) AND 36" (MAXIMUM) BELOW FINISHED GRADE.
B. ALL COMMUNICATIONS CONDUIT AND CABLES SHALL BE INSTALLED 36" (MINIMUM) BELOW FINISH GRADE.
C. ALL CONDUCTORS FOR EXTERIOR LIGHTING AND POWER CIRCUITS SHALL BE #10 AWG MINIMUM.
D. SEE MECHANICAL SITE PLAN FOR EXTENT OF TRENCHING AND EARTHWORK REQUIRED.

KEYED SHEET NOTES

1. PROVIDE MEDIUM VOLTAGE CABLES IN DUCTBANK FROM EXISTING GEAR INSIDE ELEC RCOM TO CHILLER PLANT. SEE ONELINE DIAGRAM AND DETAIL ON SHEET **EX.XX** FOR ADDITIONAL INFORMATION.
2. PROVIDE HAND HOLE. SEE ONELINE DIAGRAM FOR ADDITIONAL INFORMATION.
3. PROVIDE PULLBOX. SEE ONELINE DIAGRAM FOR ADDITIONAL INFORMATION.
4. SEE ONELINE DIAGRAM FOR WORK DONE ON MEDIUM VOLTAGE SWITCHGEAR.
5. PROVIDE CONTINUOUS CONCRETE PAD.
6. PROVIDE CONTINUOUS GROUND BAR AT 30" AFF PER DETAIL ON SHEE **EX.XX**. LENGTH AS INDICATED.
7. PROVIDE 5/8" X 10' COPPERCLAD GROUND ROD WITH EXOTHERMIC CONNECTIONS. DRIVE GROUND ROD A MINIMUM OF 12" BELOW GRADE.
8. PROVIDE (1) 1"C AND (1) 2"C SPARE CONDUITS WITH PULL STRING STUBBED 5FT OUT INTO GREEN SPACE FOR FUTURE USE. ABOVE EACH CONDUIT PROVIDE DETECTABLE WARNING TAPE 12" BELOW GRADE. PROVIDE LABEL INSIDE EACH CONDUIT READING "FOR FUTURE USE"
9. BOND TO UFER AND STRUCTURAL STEEL.
10. PROVIDE #3/0 COPPER GROUND CONDUCTOR FROM FLOOR-MOUNTED EQUIPMENT TO CONCRETE PAD REBAR.
11. PROVIDE (2) 1" CONDUIT FOR FIRE ALARM WIRING FROM CHILLER PLANT TO NEAREST NOTIFICATION APPLIANCE CIRCUIT AND INITIATING CIRCUIT IN **AREA B**. RUN IN SAME TRENCH AS MECHANICAL PIPING WHILE MAINTAINING MINIMUM 12" SEPERATION.
12. PROVIDE RED PILOT LIGHT TOGGLE SWITCH AT STAIR LANDING FOR CONTROL OF ROOF TOP LIGHTS. MOUNT IN 2-GANG BOX WITH DUPLEX RECEPTACLE.
13. PROVIDE DEDICATED 120V CONNECTION FOR REFRIGERANT LEAK PANEL.
14. PROVIDE 120V CONNECTION FOR HEAT TRACE OF STORM DRAIN.
15. ROUTE CONDUITS IN SAME TRENCH AS MECHANICAL. STUB UP IN ACTIVITY CENTER.
16. NOT USED
17. NOT USED
18. PROVIDE 13.8KV MEDIUM VOLTAGE LINEUP INCLUDING: * PULL BOX / METERING SECTION. * (2) MV SWITCHES, EACH FEEDING (1) 2500KVA 13800:480Y TRANSFORMER. (TWO TRANSFORMERS TOTAL.) * (1) MV SWITCH TO BACKFEED OLSON MV SERVICE
19. PROVIDE (2) 480V 3000A SERVICES TO FEED CHILLER PLANT EQUIPMENT.
20. PROVIDE 30KVA 480:208V TRANSFORMER AND 100A BREAKER PANEL TO FEED OUTLETS, LIGHTS AND SMALL EQUIPMENT.

Jefferson High School Mechanical Chiller Plant
Enter Address Here

INDEPENDENT SCHOOL DISTRICT #271
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Owner City, State

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License Number: **BRADLEY R. JOHANNSEN 43936** Date: **Issue Date**

Revisions		
Description	Date	Num

Comm: **202115**
Date: **Issue Date**
Drawn: **Author**
Check: **Checker**
North

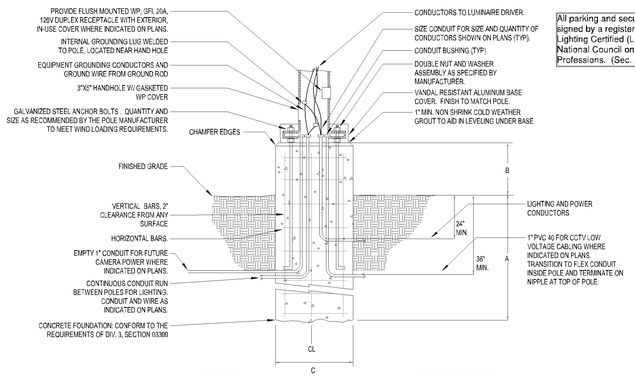
ELECTRICAL PLAN

Scale: **As indicated**

E2.0

MN

A Maximum pole height for lighting is 28 feet, all exterior fixtures must be 90 degree cut-off (U in the B.U.G. rating of 0), and maximum lumen output of 30,000 lumens.



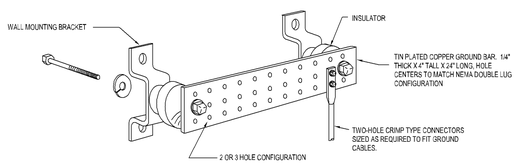
FIXTURE TYPE	A	B	C	VERT. BAR QUANT.	VERT. BAR SIZE	HORIZ. BAR SIZE	HORIZ. BAR O.C.	POLE HEIGHT	OVERALL HEIGHT
OP1	6'-6"	30"	24"	6	#6	#3	12"	27'-5"	37'-0"
OP2	6'-6"	30"	24"	6	#6	#3	12"	27'-5"	37'-0"
OP3	6'-5"	30"	24"	6	#6	#3	12"	27'-5"	37'-0"
OP4	5'-6"	9"	15"	4	#5	#3	10"	14'-3"	15'-0"
OP5	5'-6"	9"	12"	4	#5	#3	10"	11'-3"	12'-0"

C1 SITE LIGHTING - POLE BASE DETAIL
N.T.S.

All parking and security lighting plans must be signed by a registered Electrical Engineer or a Lighting Certified (LC) Professional certified by the National Council on Qualifications for the Lighting Professions. (Sec. 21.301.07(b))

MARK	LUMINAIRE TYPE	LUMEN/WATTS	VOLTAGE	MOUNTING	LENS/LOUVER	OTHER REQUIREMENTS	MANUFACTURERS' SERIES	NOTES	MARK	SPARE
E1	EXIT SIGN SINGLE FACE	<5 LED	120	UNIVERSAL	INTERIOR REFLECTOR	WHITE FINISH STENCIL FACE LETTERS BATTERY BACK-UP	LITHONIA		E1	
EM	EMERGENCY LIGHTS	<5 LED	120	WALL MOUNT					EM	
F	INDUSTRIAL 4-FOOT FIXTURE	3000+ LUMENS 4000K	120	CHAIN HUNG	REFLECTOR	WIRE GUARD POST PAINTED MATTE WHITE	LITHONIA		F	

B4 LIGHT FIXTURE SCHEDULE
12" = 1'-0"



NOTES:

1. PROVIDE EXOTHERMIC WELD CONNECTIONS AND BOLTED LUG CONNECTIONS AS PER SPECIFICATIONS.
2. REFER TO TELECOMMUNICATION GROUND BUS DETAIL FOR REQUIREMENTS IN TELECOMMUNICATION ROOMS.

D1 GROUND BUS
N.T.S.

MOTOR SCHEDULE

LOAD INFORMATION							CONDUIT			WIRE QUANTITY AND SIZE				WIRE TYPE		STARTER				DISCONNECT					CTRL'S	NOTES	MTR
MTR	DESCRIPTION	LOC	LOAD	UNIT	VOLTAGE	PANEL	SET(S)	SIZE	TYPE	P+N	PHASE	NEUT	GND	TYPE	INSUL	SUPPLIED	INSTALLED	SIZE	LOC	SUPPLIED	INSTALLED	TYPE	TYPE	LOC	BY		
AHU-1	AIR HANDLER UNIT - SUPPLY		3	HP	480/3		1	3/4"	EMT	3	12 AWG		12 AWG	CU	THHN	ELEC	ELEC	SIZE 0	MTR	ELEC	ELEC	FS	30A	MTR	MECH		AHU-1
AHU-2	AIR HANDLER UNIT - SUPPLY		3	HP	480/3		1	3/4"	EMT	3	12 AWG		12 AWG	CU	THHN	ELEC	ELEC	SIZE 0	MTR	ELEC	ELEC	FS	30A	MTR	MECH		AHU-2
																MECH		VFD									
B-1	BOILER		1/6	HP	120/1		1	3/4"	EMT	2	12 AWG	12 AWG	12 AWG	CU	THHN	MECH	ELEC	VFD	MTR	ELEC	ELEC	MMS	15A	MTR	MECH		B-1
B-2	BOILER		1/6	HP	120/1		1	3/4"	EMT	2	12 AWG	12 AWG	12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		B-2
CH-1	CHILLER		614	MCA	480/3		ERR	ERR	ERR	ERR	ERR	ERR	ERR	CU	THHN	MFR	MFR		MTR	ELEC	ELEC	FS	800A	MTR	MECH		CH-1
CH-2	CHILLER		614	MCA	480/3		ERR	ERR	ERR	ERR	ERR	ERR	ERR	CU	THHN	MFR	MFR		MTR	ELEC	ELEC	FS	800A	MTR	MECH		CH-2
CH-3	CHILLER		614	MCA	480/3		ERR	ERR	ERR	ERR	ERR	ERR	ERR	CU	THHN	MFR	MFR		MTR	ELEC	ELEC	FS	800A	MTR	MECH		CH-3
CH-4	CHILLER		614	MCA	480/3		ERR	ERR	ERR	ERR	ERR	ERR	ERR	CU	THHN	MECH	MFR	VFD	MTR	ELEC	ELEC	FS	800A	MTR	MECH		CH-4
CT-1	COOLING TOWER		40	HP	480/3		1	3/4"	EMT	3	6 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 3	MTR	ELEC	ELEC	FS	100A	MTR	MECH		CT-1
CT-2	COOLING TOWER		40	HP	480/3		1	3/4"	EMT	3	6 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 3	MTR	ELEC	ELEC	FS	100A	MTR	MECH		CT-2
CT-3	COOLING TOWER		40	HP	480/3		1	3/4"	EMT	3	6 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 3	MTR	ELEC	ELEC	FS	100A	MTR	MECH		CT-3
CT-4	COOLING TOWER		40	HP	480/3		1	3/4"	EMT	3	6 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 3	MTR	ELEC	ELEC	FS	100A	MTR	MECH		CT-4
EF-1	EXHAUST FAN		1/4	HP	120/1		1	3/4"	EMT	2	12 AWG	12 AWG	12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		EF-1
EF-2	EXHAUST FAN		1/2	HP	120/1		1	3/4"	EMT	2	12 AWG	12 AWG	12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		EF-2
P-1	PUMP		75	HP	480/3		1	1 1/4"	EMT	3	1 AWG		6 AWG	CU	THHN	ELEC	ELEC	SIZE 4	MTR	ELEC	ELEC	FS	200A	MTR	MECH		P-1
P-2	PUMP		75	HP	480/3		1	1 1/4"	EMT	3	1 AWG		6 AWG	CU	THHN	ELEC	ELEC	SIZE 4	MTR	ELEC	ELEC	FS	200A	MTR	MECH		P-2
P-3	PUMP		75	HP	480/3		1	1 1/4"	EMT	3	1 AWG		6 AWG	CU	THHN	ELEC	ELEC	SIZE 4	MTR	ELEC	ELEC	FS	200A	MTR	MECH		P-3
P-4	PUMP		50	HP	480/3		1	1"	EMT	3	4 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 3	MTR	ELEC	ELEC	FS	100A	MTR	MECH		P-4
P-5	PUMP		50	HP	480/3		1	1"	EMT	3	4 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 3	MTR	ELEC	ELEC	FS	100A	MTR	MECH		P-5
P-6	PUMP		50	HP	480/3		1	1"	EMT	3	4 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 3	MTR	ELEC	ELEC	FS	100A	MTR	MECH		P-6
P-7	PUMP		1.5	HP	208/1		1	3/4"	EMT	2	12 AWG		12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		P-7
P-8	PUMP		1.5	HP	208/1		1	3/4"	EMT	2	12 AWG		12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		P-8
P-9	PUMP		60	HP	480/3		1	1 1/4"	EMT	3	2 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 4	MTR	ELEC	ELEC	FS	100A	MTR	MECH		P-9
P-10	PUMP		60	HP	480/3		1	1 1/4"	EMT	3	2 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 4	MTR	ELEC	ELEC	FS	100A	MTR	MECH		P-10
P-11	PUMP		60	HP	480/3		1	1 1/4"	EMT	3	2 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 4	MTR	ELEC	ELEC	FS	100A	MTR	MECH		P-11
P-12	PUMP		60	HP	480/3		1	1 1/4"	EMT	3	2 AWG		8 AWG	CU	THHN	ELEC	ELEC	SIZE 4	MTR	ELEC	ELEC	FS	100A	MTR	MECH		P-12
P-13	PUMP		1/2	HP	208/1		1	3/4"	EMT	2	12 AWG		12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		P-13
SP-1	SUMP PUMP		1/2	HP	208/1		1	3/4"	EMT	2	12 AWG		12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		SP-1
UH-1	UNIT HEATER		1/3	HP	120/1		1	3/4"	EMT	2	12 AWG	12 AWG	12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		UH-1
UH-2	UNIT HEATER		1/3	HP	120/1		1	3/4"	EMT	2	12 AWG	12 AWG	12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		UH-2
WH-1	WATER HEATER		1/6	HP	120/1		1	3/4"	EMT	2	12 AWG	12 AWG	12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		WH-1
WH-2	WATER HEATER		1/6	HP	120/1		1	3/4"	EMT	2	12 AWG	12 AWG	12 AWG	CU	THHN	ELEC	ELEC		MTR	ELEC	ELEC	MMS	15A	MTR	MECH		WH-2

E

Jefferson High School Mechanical Chiller Plant
Enter Address Here

INDEPENDENT SCHOOL DISTRICT #271
Owner Address
Owner City, State

WOLD ARCHITECTS AND ENGINEERS
332 Minnesota Street, Suite W2000
Saint Paul, MN 55101
wold.ac.com | 651 227 7773

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of MINNESOTA

License Number: 43936 — BRADLEY R. JOHANNSEN — Date: Issue Date

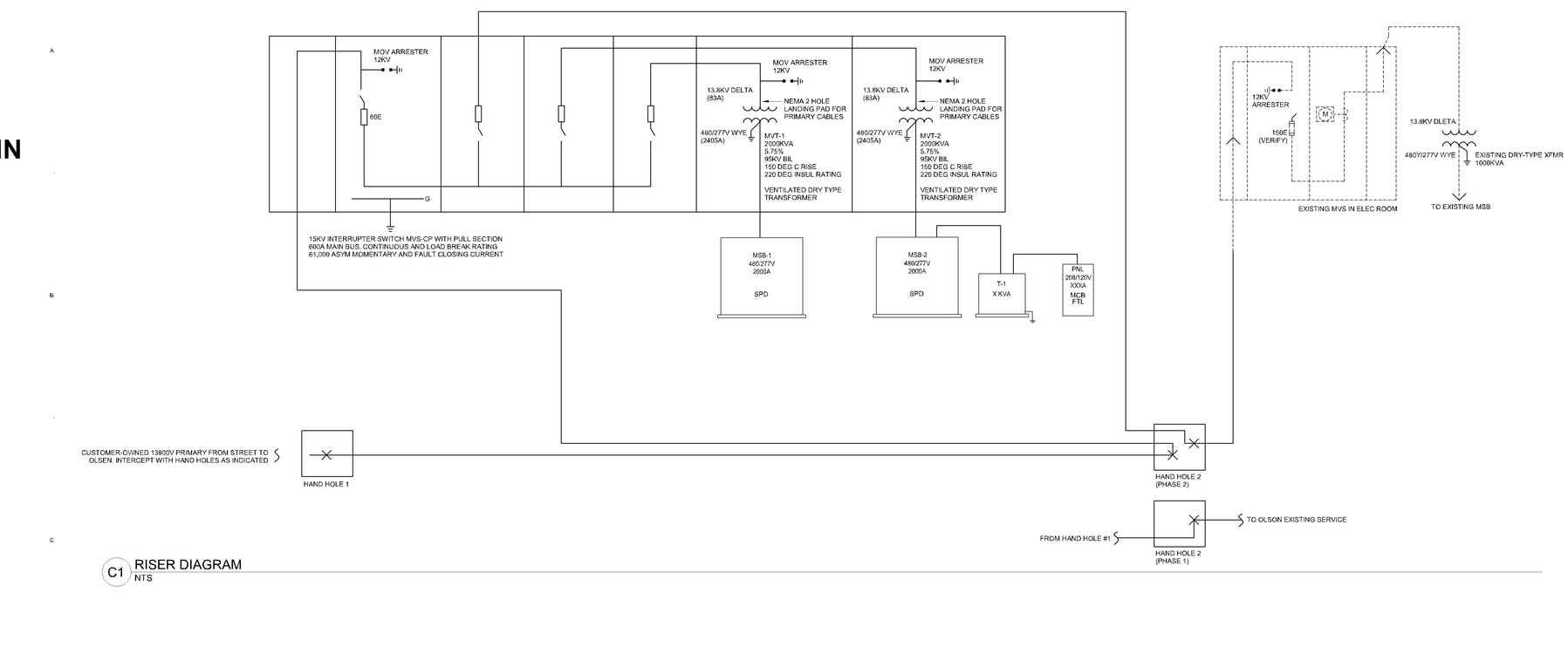
Revisions		
Description	Date	Num

Comm: 202115
Date: Issue Date
Drawn: Author
Check: Checker
North

ELECTRICAL SCHEDULE

Scale: As indicated

E3.0



C1 RISER DIAGRAM
NTS

GENERAL NOTES:

A. PROVIDE COPPER CONDUCTORS.
B. PROVIDE XHHW INSULATION FOR UNDERGROUND CONDUCTORS.
C. PROVIDE GALVANIZED RIGID STEEL CONDUIT FOR EXPOSED EXTERIOR CONDUITS.
D. ROUTE HORIZONTAL CONDUITS ABOVE BOTTOM CHORD OF BAR JOISTS UNLESS NOTED OTHERWISE. ROUTE CONDUITS FROM WALL MOUNTED DEVICES VERTICALLY TO JOIST SPACE UNLESS NOTED OTHERWISE.
E. OBTAIN SHOP DRAWINGS OF EQUIPMENT AND COMPARE CONNECTION, LOAD, AND VOLTAGE INFORMATION TO CONTRACT DOCUMENTS BEFORE INSTALLING FEEDER CONDUITS. NOTIFY ARCHITECT OF ANY DISCREPANCIES. BEFORE MAKING EQUIPMENT POWER CONNECTIONS, COMPARE EQUIPMENT NAMEPLATE DATA TO SHOP DRAWINGS AND CONTRACT DOCUMENTS. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
F. MOTOR FEEDERS SHOWN ON DIAGRAM FOR REFERENCE. REFER TO MOTOR SCHEDULE FOR MORE INFORMATION.
G. REFER TO SITE PLAN FOR EXACT LOCATIONS OF EXTERIOR EQUIPMENT.
H. COORDINATE ALL DEMOLITION WITH PHASING PLANS. SEE ELECTRICAL FLOOR PLANS AND ARCHITECTURAL PHASING PLANS.

LINE TYPES:

EXISTING EQUIP/FEEDER TO REMAIN — EX
DEMOLISH OR RELOCATE EQUIP/FEEDER — RL
NEW OR NEW LOCATION OF EQUIP/FEEDER — NL

KEYED NOTES:

1. REPLACE PANEL IN PLACE. CUT AND PATCH WALL AS REQUIRED. COORDINATE PATCHING WITH ARCHITECT.
2. PROVIDE 1" CONDUIT WITH CONTROL WIRING FROM GENERATOR TO EACH ATS. COORDINATE EXACT REQUIREMENTS WITH ATS AND GENERATOR MANUFACTURER.
3. PROVIDE GENERATOR BY CATERPILLAR, ONAN OR MTU. NO EQUALS. GENERATOR TO HAVE WEATHERPROOF, SOUND ATTENUATED ENCLOSURE. PROVIDE CAGE OVER MUFFLER TO PREVENT DEBRIS FROM ENTERING.
4. PROVIDE CIRCUIT BREAKER SWITCHBOARD WITH POWER CIRCUIT BREAKER MAIN WITH LSI TRIP SETTINGS AND EXTERNAL SURGE PROTECTION. FURNISH PROVISIONS IN SWITCHBOARD FOR FUTURE DISTRIBUTION SECTIONS.
5. PROVIDE GENSET ANNUNCIATOR IN NURSE STATION A101. CONNECT TO BUILDING AUTOMATION SYSTEM TO INDICATE IF GENERATOR IS RUNNING.
6. GENERATOR TO BE A SEPARATELY DERIVED SYSTEM. PROVIDE 1/2" X 10' COPPER CLAD GROUND ROD AT OPPOSITE CORNERS OF CONCRETE PAD. EXOTHERMIC WELD #3/0 COPPER GROUND CONNECTION TO GENERATOR AT EACH GROUND ROD. PROVIDE ADDITIONAL GROUND RODS AS REQUIRED TO OBTAIN 25 OHMS GROUND RESISTANCE.
7. PROVIDE CIRCUIT BREAKER WITH LSI TRIP SETTINGS FOR ALL BREAKER FRAME SIZES 200A OR MORE IN THIS PANEL/SWITCHBOARD.
8. PROVIDE CUSTOMER METER WITH WEB BASED SOFTWARE (EATON PXM 2250 WITH POWER EXPERT ENERGY VIEWER OR EQUAL). PROVIDE DATA CONNECTION TO NETWORK. SWITCHBOARD MANUFACTURER TO PROVIDE CUTOUT FOR METER AND ALL REQUIRED ACCESSORIES FOR METER INSTALLATION (CT SHORTING BLOCK, PT CONNECTIONS, ETC).
9. PROVIDE RAISED PLATFORM WITH RAILING AND STAIRS IN FRONT OF CONTROL PANEL. COORDINATE LOCATION WITH CLEARANCES OF OTHER EQUIPMENT IN EQUIPMENT YARD.
10. PROVIDE ASCO 4000 SERIES AUTOMATIC TRANSFER SWITCH WITH METERING AND NETWORK CAPABILITIES (OR APPROVED EQUALS).
11. PROVIDE CONNECTION TO BUILDING AUTOMATION SYSTEM FOR ATS STATUS.
12. SEE PANEL SCHEDULE FOR ADDITIONAL BREAKERS NOT INDICATED.
13. PROVIDE EMPTY 1" CONDUIT FOR FUTURE CONNECTION TO BUILDING AUTOMATION SYSTEM FOR OWNER METERING. STUB INTO MAIN ELECTRICAL ROOM. COORDINATE WITH UTILITY COMPANY ON ADDITIONAL RELAYS REQUIRED AT UTILITY METER.
14. PROVIDE CONCRETE PAD FOR FLOOR-MOUNTED EQUIPMENT.
15. PROVIDE 208V/1PH CONNECTION FROM PANEL PDP-1LL1 FOR GENERATOR LOAD CENTER. GENERATOR ACCESSORIES FED FROM LOAD CENTER. COORDINATE EXACT LOCATION OF GENERATOR REMOTE SHUT OFF WITH OWNER PRIOR TO ROUGH-IN.
16. PROVIDE (2) FLOAT SWITCHES IN DAY TANK AND ELECTRIC SOLENOIDS FOR BOILER FUEL PUMPS. WHEN TANK REACHES 50% FUEL LEVEL, FUEL CONNECTION TO PUMPS TO STOP IN ORDER TO MAINTAIN 1000G MINIMUM FOR GENERATOR USE. COORDINATE PROGRAMMING OF BOTH FLOAT SWITCHES WITH ENGINEER.
17. PROVIDE DOCKING STATION WITH REMOTE CAMLOCKS AND (1) 20A 120V AND (1) 30A 120V RECEPTACLES FOR SHORE POWER.

3 PHASE FEEDER SCHEDULE (COPPER)		
	FEEDER 3W	FEEDER 4W
ID	(NO NEUTRAL)	(WITH NEUTRAL)
(AMPS)	CONDUIT-PHASE-GROUND	CONDUIT-PHASE-GROUND
20A	(1) 1/2"C, 3#12+1#12G	(1) 1/2"C, 4#12+1#12G
30A	(1) 3/4"C, 3#10+1#10G	(1) 3/4"C, 4#10+1#10G
40A	(1) 3/4"C, 3#8+1#10G	(1) 3/4"C, 4#8+1#10G
50A	(1) 1"C, 3#6+1#10G	(1) 1"C, 4#6+1#10G
65A	(1) 1.25"C, 3#4+1#6G	(1) 1.25"C, 4#4+1#6G
85A	(1) 1.25"C, 3#3+1#6G	(1) 1.25"C, 4#3+1#6G
100A	(1) 1.25"C, 3#3+1#6G	(1) 1.25"C, 4#3+1#6G
125A	(1) 1.5"C, 3#1+1#6G	(1) 1.5"C, 4#1+1#6G
150A	(1) 1.5"C, 3#1/0+1#6G	(1) 2"C, 4#1/0+1#6G
175A	(1) 1.5"C, 3#2/0+1#6G	(1) 2"C, 4#2/0+1#6G
200A	(1) 2"C, 3#3/0+1#6G	(1) 2"C, 4#3/0+1#6G
225A	(1) 2"C, 3#4/0+1#4G	(1) 2.5"C, 4#4/0+1#4G
250A	(1) 2.5"C, 3#250+1#4G	(1) 2.5"C, 4#250+1#4G
300A	(1) 2.5"C, 3#350+1#4G	(1) 3"C, 4#350+1#4G
400A	(2) 2"C, 3#3/0+1#2G	(2) 2"C, 4#3/0+1#2G
500A	(2) 2.5"C, 3#250+1#2G	(2) 3"C, 4#250+1#2G
600A	(2) 3"C, 3#350+1#1G	(2) 3"C, 4#350+1#1G
800A	(3) 2.5"C, 3#300+1#1/0G	(3) 2.5"C, 4#300+1#1/0G
1000A	(3) 3"C, 3#400+1#2/0G	(3) 3.5"C, 4#400+1#2/0G
1200A	(4) 3"C, 3#350+1#3/0G	(4) 3"C, 4#350+1#3/0G
1600A	(5) 3"C, 3#400+1#4/0G	(5) 3.5"C, 4#400+1#4/0G
2000A	(6) 3"C, 3#400+1#250G	(6) 3"C, 4#400+1#250G
2500A	(7) 3"C, 3#500+1#300G	(7) 3"C, 4#500+1#300G
3000A	(8) 3.5"C, 3#500+1#400G	(8) 3.5"C, 4#500+1#400G

GENERAL NOTES:

A. THE ABOVE FEEDER SCHEDULE IS A SCHEDULE OF TYPICAL FEEDERS AND SOME SIZES MAY NOT BE UTILIZED.

B. ALL CONDUCTOR AMPACITIES ARE BASED ON TABLE 310-15 OF THE NEC FOR COPPER CONDUCTOR AT 75 DEG C.

C. FEEDER SIZES SHOWN ON THE RISER DIAGRAM INDICATE FEEDER AMPACITIES AND DO NOT NECESSARILY CORRESPOND TO CIRCUIT BREAKER AMPACITIES. CERTAIN FEEDERS MAY BE SIZED FOR THE DURATION FACTORS REQUIRED BY CODE AND/OR ARE OVERSIZED FOR VOLTAGE DROP.

D. WHERE PARALLEL CONDUITS ARE INDICATED FOR A SINGLE FEEDER, EACH CONDUIT SHALL CONTAIN PHASE, NEUTRAL, AND GROUND CONDUCTORS INDICATED.

E. CONDUIT ABOVE GRADE INDOORS SHALL BE EMT. CONDUIT ABOVE GRADE OUTDOORS SHALL BE GALVANIZED IMC OR RMC.

F. EMT USED FOR PURPOSES OF SIZING CONDUIT. CONTRACTOR TO UPSIZE CONDUIT IF DIFFERENT THAN EMT.

Jefferson High School Mechanical Chiller Plant

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INDEPENDENT SCHOOL DISTRICT #271
Owner Address
Owner City, State

WOLD ARCHITECTS AND ENGINEERS
332 Minnesota Street, Suite W2000
Saint Paul, MN 55101
wold.com | 651 227 7773

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed **PROFESSIONAL ENGINEER** under the laws of the State of **MINNESOTA**

License Number: **BRADLEY R. JOHANNSEN 43936** Date: **Issue Date**

Revisions		
Description	Date	Num

Comm: **202115**
Date: **Issue Date**
Drawn: **Author**
Check: **Checker**

RISER DIAGRAM

Scale: **As indicated**

E4.0

MN

E