## UNION COUNTY SCHOOLS

# UNION COUNTY HIGH SCHOOL -FIELD HOUSE

153 Panther Circle, Blairsville, GA 30512

## **DESIGN TEAM**

**ARCHITECT** CDH PARTNERS. INC. Andrew Savage 675 Tower Road Marietta, GA 30060 t 770-423-0016

CORNERSTONE SITE Andrew Halloran 2985 Gordy Parkway, Suite 119 t 770-490-9182

**MECHANICAL** DRINKARD ENGINEERING Bradley Jordan 119 South Broad St Rome, GA 30161 t 678-800-4664

**ELECTRICAL LUNDY ENGINEERING** Andrew Lundy 229 Land Road Waleska, GA 30183 t 678-634-6941

**STRUCTURAL** MH STRUCTURES Matt Hammond 5077 Dallas Hwy, Suite 201 Powder Springs, GA 30127 t 404-495-4889

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SHEET		DD's 10.04.2019	PERMIT SET 10.30.2019	% CD's 11.08.2019
NUMBE		DD.	PE	100%
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	SHEET			Τ.
T001	COVER SHEET	•	•	•
02 GENI	ERAL INFORMATION			
G001	LEGEND, TOILET LAYOUTS AND SCHEDULE		•	•
0001	ELOCIND, TOILLY EXTOGRAPHING GOTTLEBOLL			
03 CIVIL				
C000	CIVIL COVER SHEET		•	•
C020	EXISTING CONDITIONS PLAN		•	•
C030	SITE DEMOLITION & INITIAL ESPC PLAN SOUTH	•	•	•
C031	SITE DEMOLITION & INITIAL ESPC PLAN NORTH	•	•	•
C100	SITE PLAN SOUTH	•	•	•
C101	SITE PLAN NORTH	•	•	•
C110	GRADING & DRAINAGE PLAN SOUTH	•	•	•
C111	GRADING & DRAINAGE PLAN NORTH	•	•	•
C120	UTILITY PLAN SOUTH	•	•	•
C121	UTILITY PLAN NORTH			•
C130	INTERMEDIATE & FINAL ESPC PLAN SOUTH		•	•
C131	INTERMEDIATE & FINAL ESPC PLAN NORTH		•	•
C132	ESPC NOTES		•	•
C300	STORM SEWER PROFILES		•	•
C500	SITE DETAILS		•	•
C501	DRAINAGE & SITE UTILITY DETAILS		•	•
C510	ESPC DETAILS		•	•
C511	ESPC DETAILS		•	•
C512	ESPC DETAILS		•	•
C513	ESPC DETAILS		•	•
C514	ESPC DETAILS		•	•
C520	G.D.O.T. DETAILS		•	•
C521	G.D.O.T. DETAILS		•	•
	0.45577			
	SAFETY			_
LS01	LIFE SAFETY PLAN		•	•
	OLITION			
03 DEINI D101	DEMOLITION FLOOR PLAN - EXISTING FIELD HOUSE			_
וטוט	DEWOLITION FLOOR FLAN - EXISTING FIELD HOUSE	•	•	_
06 V D C I	HITECTURAL			
4021	DOOR AND PARTITION SCHEDULES		•	•
A101	FLOOR PLAN - EXISTING FIELD HOUSE	•	•	•
A101 A102	FLOOR PLAN - NEW FIELD HOUSE	•	•	•
A151	ROOF PLANS & DETAILS	•	_	•
A201	EXTERIOR ELEVATIONS		_	
A201 A202	EXTERIOR ELEVATIONS - NEW FIELD HOUSE	•	_	•
7202	BUILDING & WALL SECTIONS			—

S001	GENERAL NOTES	(	•
S002	TYPICAL DETAILS		•
S003	TYPICAL DETAILS		•
S101	FOUNDATION PLAN - EXISTING FIELD HOUSE RENOVATIONS		•
S102	ROOF FRAMING PLAN - EXISTING FIELD HOUSE RENOVATION		•
S103	FOUNDATION & ROOF FRAMING PLAN - NEW FIELD HOUSE		•
S201	SECTIONS		•
S301	DETAILS		•

M001	HVAC SCHEDULES, NOTES, & LEGEND		•
M002	HVAC DETAILS		•
M101	EXISTING FIELD HOUSE HVAC PLANS	•	•
M201	NEW FIELD HOUSE HVAC PLANS	•	•
M301	HVAC SPECIFICATIONS		•
M302	HVAC SPECIFICATIONS		•
M303	HVAC SPECIFICATIONS		•
P001	PLUMBING SCHEDULES, NOTES, & LEGEND		•
10 PLUI			
	PLUMBING DETAILS		
P002	. 2011.2.110 22.111.20		•
P101	EXISTING FIELD HOUSE PLUMBING PLANS	•	•
P102	EXISTING FIELD HOUSE PLUMBING PLANS		•
P201	NEW FIELD HOUSE PLUMBING PLANS	•	•
P301	FACILITY GAS PIPING PLAN		•
P401	PLUMBING SPECIFICATIONS		•
P402	PLUMBING SPECIFICATIONS		•
12 ELEC	CTRICAL		
E001	ELECTRICAL NOTES, LEGEND, & SPECS	•	•
E002	ELECTRICAL DETAILS & SCHEDULES	•	•

E200 ELECTRICAL NEW FIELD HOUSE PLAN

ELECTRICAL EXISTING FIELD HOUSE LIGHTING PLAN ELECTRICAL EXISTING FIELD HOUSE POWER PLAN

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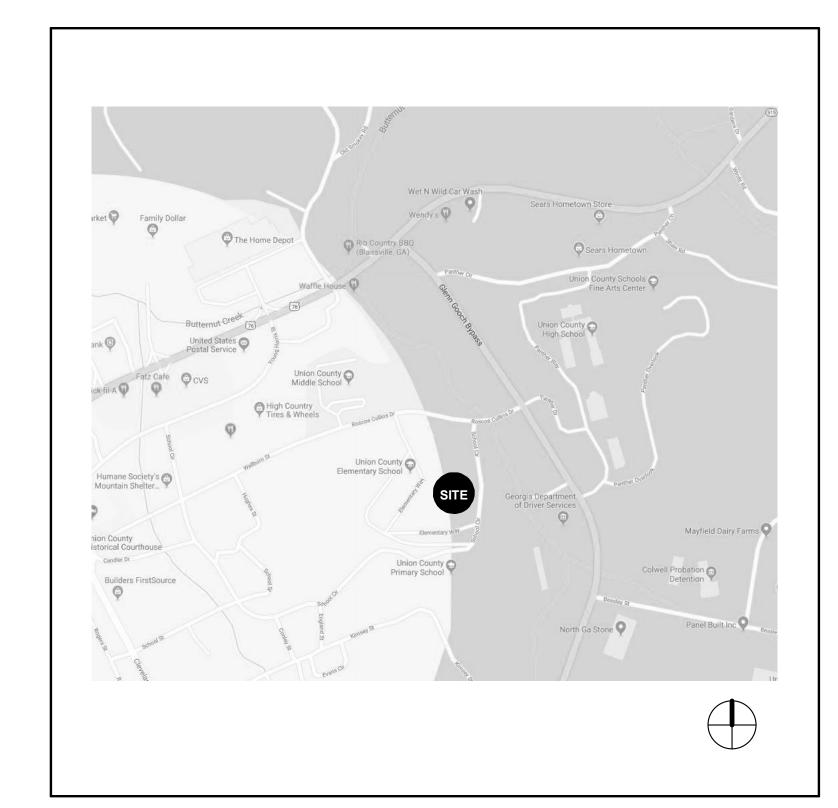
## **DESCRIPTION OF SCOPE**

- RENOVATION OF EXISTING ATHLETIC FIELD HOUSE AND ADDITION OF RESTROOMS. RENOVATION INCLUDES MECHANICAL. PLUMBING, ELECTRICAL, ALTERATIONS OF INTERIOR WALLS AND FINISHES.
- CONSTRUCTION OF NEW ATHLETIC FIELD HOUSE ON OPPOSITE SIDE OF EXISTING TRACK/FIELD. NEW CONSTRUCTION SCOPE CONSISTS OF NEW WOOD FRAMED, ONE-STORY BUILDING.
- SITEWORK AND UTILITIES TO ACCOMMODATE NEW BUILDING.

## **PRICING ALTERNATIVES:**

- DELETE THE SCOPE OF WORK WITHIN THE EXISTING VARSITY LOCKER ROOM AND ASSOCIATED RESTROOMS, SHOWERS, AND STORAGE SPACES
- IN LIEU OF REPLACING ALL PLUMBING FIXTURES, ALLOW THE REUSE OF EXISTING **FIXTURES**
- DELETE ALL HVAC SCOPE FROM THE PROJECT
- DELETE THE SPLIT FACE CMU WATER TABLE FROM BOTH THE NEW AND EXISTING BUILDINGS
- PROVIDE SHED ROOFS FOR BUILDING ENTRIES IN LIEU OF GABLE ROOF CANOPIES
- ALLOW THE EXISTING LOCKER ROOM ENTRANCE CANOPY FRAMING AND SUPPORTS TO REMAIN
- REMOVE EXISTING FIELD HOUSE ADDITION FROM SCOPE OF WORK
- IN LIEU OF HOLLOW METAL EXTERIOR DOORS, PROVIDE FLUSH TYPE FIBERGLASS REINFORCED PLASTIC DOORS 1 3/4" THICK WITH INSULATED CORE. BASIS OF DESIGN: TIGER DOOR HEAVY DUTY DOOR AND KNOCKDOWN FRAME.
- PROVIDE PRICING FOR THE INSTALLATION OF A FULL DDC CONTROL SYSTEM BY CARRIER I-Vu. SYSTEM SHALL INCLUDE ALL PARTS AND PIECES TO CONNECT EACH BUILDING TO THE SCHOOL'S CENTRAL BAS SYSTEM. ALL EXISTING TO REMAIN EQUIPMENT SHALL BE RETROFITTED w/ BACnet CARDS. ALL NEW EQUIPMENT SHALL HAVE BACnet CARDS. COORDINATE w/ FACILITIES FOR SCOPE OF POINTS LIST. AT MINIMUM PROVIDE START-STOP CONTROL AND THERMOSTATIC SENSOR DATA

## **LOCATION MAP**



## **GENERAL NOTES**

. THE PLANS ARE COMPLEMENTARY; WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. I. THE WRITTEN SPECIFICATIONS, AND ADDENDA FOR THIS PROJECT COMPLEMENTS THE DRAWINGS, AND ARE HEREBY MADE A PART OF 3. ALL DRAWINGS AND DETAILS OF THE EXISTING CONDITIONS ARE REPRESENTATIVE OF EXISTING CONDITIONS ONLY. THE CONTRACTOR SHALL VERIFY THE ACCURACY OF DETAILS WITH ACTUAL CONDITIONS AND COORDINATE WITH THE ARCHITECT ANY DEVIATIONS TO

#### **GENERAL NOTES**

. ARCHITECT SHALL BE NOTIFIED IMMEDIATELY UPON THE DISCOVERY OF ANY POSSIBLE HISTORIC OR ANTHROPOLOGIC FINDS DURING . OWNER AND ARCHITECT SHALL BE NOTIFIED IMMEDIATELY UPON THE DISCOVERY OF ANY POSSIBLE ASBESTOS OR HAZARDOUS FINDS DURING CONSTRUCTION. WORK IN THE SUSPECTED AREA SHALL STOP IMMEDIATELY UNTIL THE PROPER INVESTIGATION AND ABATEMENT MEASURES CAN BE TAKEN.

. ALL INTERIOR DIMENSIONS SHOWN ON FLOOR PLANS FOR METAL STUD PARTITIONS ARE TO THE FACE OF FRAMING MEMBER, OR TO THE CENTERLINE OF COLUMN GRID SHOWN. 2. CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND JOB CONDITIONS AT THE SITE. DISCREPANCIES SHALL BE REPORTED 3. EXTERIOR DIMENSIONS SHOWN ON FLOOR PLANS ARE TO THE FACE OF EXTERIOR WALLS OR TO THE CENTERLINE OF COLUMN GRID 4. DRAWINGS ARE CAD GENERATED AND HAVE THE ABILITY TO BE PRINTED AT VARIOUS SCALES; IF DIMENSIONS ARE NOT INDICATED ON THE DRAWINGS NOTIFY THE ARCHITECT AND DIMENSIONS WILL BE PROVIDED. DO NOT SCALE DRAWINGS

A KEYNOTE SYSTEM IS USED ON THESE DRAWINGS FOR MATERIAL REFERENCES AND NOTES. REFER TO THE KEYNOTE LEGEND ON THE DRAWING FOR THE INFORMATION WHICH REFERS TO EACH KEYNOTE SYMBOL ON THAT RESPECTIVE DRAWING. EACH KEYNOTE SYMBOL CONSISTS OF 6-DIGIT NUMBER FOLLOWED BY AN ALPHA NUMERICAL SUFFIX. THE 6-DIGIT NUMBER RELATES TO A SPECIFICATION SECTION WHICH GENERALLY COVERS THE ITEM THAT IS REFERENCED. THE ALPHA NUMERICAL SUFFIX COMBINED WITH NUMBER CREATES A KEYNOTE SYMBOL WHICH IDENTIFIES THE SPECIFIC REFERENCE NOTATION USED ON THE DRAWINGS. THE SUFFIX DOES NOT RELATE TO ANY CORRESPONDING REFERENCE LETTER OR NUMBER USED IN THE ORGANIZATION SYSTEM OF THE

THE USE OF KEYNOTE REFERENCE NUMBERS ON THESE DRAWINGS IS A CONVENTION ONLY FOR DENOTING MATERIALS USED AND INCORPORATED INTO THE DRAWINGS. THESE NUMBERS SHALL NOT CONTROL THE CONTRACTOR IN DIVIDING THE WORK AMONG HIS SUB-CONTRACTORS OR IN ESTABLISHING THE EXTENT OF WORK TO BE PERFORMED BY ANY TRADE.

## PROJECT and CODE SUMMARY

Blairsville, Georgia 30512 PROJECT ADDRESS: 153 Panther Circle, Blairsville, GA 30512

#### **BUILDING AREA**

1. FLOOR LEVELS	2. AREA (GROSS S.F.)
New Field House	2,316 SF
Existing Field House	6,042 SF
New Addition	781 SF
TOTAL	9,139 SF

ATHLETIC FIELDHOUSE / LOCKER ROOM PROJECT TYPE: SITE CLASS: D / DESIGN CATEGORY: 0 SEISMIC ZONE:

#### A. APPLICABLE CODES

INTERNATIONAL BUILDING CODE, 2012 Edition, WITH GEORGIA AMENDMENTS (2014)(2015) **BUILDING:** INTERNATIONAL MECHANICAL CODE, 2012 Edition, WITH GEORGIA AMENDMENTS (2015) MECHANICAL:

PLUMBING: INTERNATIONAL PLUMBING CODE, 2012 Edition, WITH GEORGIA AMENDMENTS (2014)(2015)

NATIONAL ELECTRIC CODE, 2017 Edition, WITH NO GEORGIA AMENDMENTS **ELECTRICAL**:

INTERNATIONAL FIRE CODE, 2012 Edition, WITH GEORGIA AMENDMENTS (2014); INTERIOR FINISH PER NFPA 101

INTERNATIONAL FUEL GAS CODE, 2012 Edition, WITH GEORGIA AMENDMENTS (2014)(2015)

INTERNATIONAL ENERGY CONSERVATION CODE, 2009 Edition, WITH GEORGIA SUPPLEMENTS AND AMENDMENTS **ENERGY**:

LIFE SAFETY: 2012 NFPA 101 - LIFE SAFETY CODE WITH STATE AMENDMENTS (2013)

ACCESSIBILITY: GAC 120-3-20 (.01-.08)

## **B. BUILDING INSPECTION DEPARTMENT**

Union County

		REFERENCES
C. OCCUPANCY CLASSIFICATION GROUP	GROUP A5	IBC, SECTION 303.6 NFPA 101 CHAPTER 12
D. TYPE OF CONSTRUCTION	TYPE VB	IBC, TABLE 601
E. SPRINKLERED / UNSPRINKLERED	UNSPRINKLERED	NFPA 13
<ul><li>F. ALLOWABLE HEIGHT</li><li>1. Allowable Building Height</li><li>2. Actual Building Height</li></ul>	40 FT. 16 FT.	IBC, TABLE 503
<ul><li>G. ALLOWABLE AREA</li><li>1. Area Allowed Per Floor</li><li>2. Area Modifications Allowed Per Floor</li></ul>	UNLIMITED S.F. UNLIMITED S.F.	IBC, TABLE 503 IBC, SECTION 506
H. OCCUPANT SEPARATION	NA	IBC, SECTION 508.4
I. TENANT SEPARATION	NA	

## K. CONSTRUCTION ELEMENTS:

11 CONCINCOTION ELEMENTO						
ITEM	CODE & SECTION	RATING (MIN.)	DESIGN NUMBER	COMMENTS		
STRUCTURAL FRAME	IBC T 601	0	0			
BEARING WALLS						
EXTERIOR	IBC T 601	0	0			
INTERIOR	IBC T 601	0	0			
NON BEARING WALLS						
EXTERIOR	IBC T 602	0	0			
INTERIOR	IBC T 601	0	0			
FLOOR CONSTRUCTION	IBC T 601	0	0			
ROOF CONSTRUCTION	IBC T 601	0	0	STRUCTURE ABOVE 20 FT UNPROTECTED		



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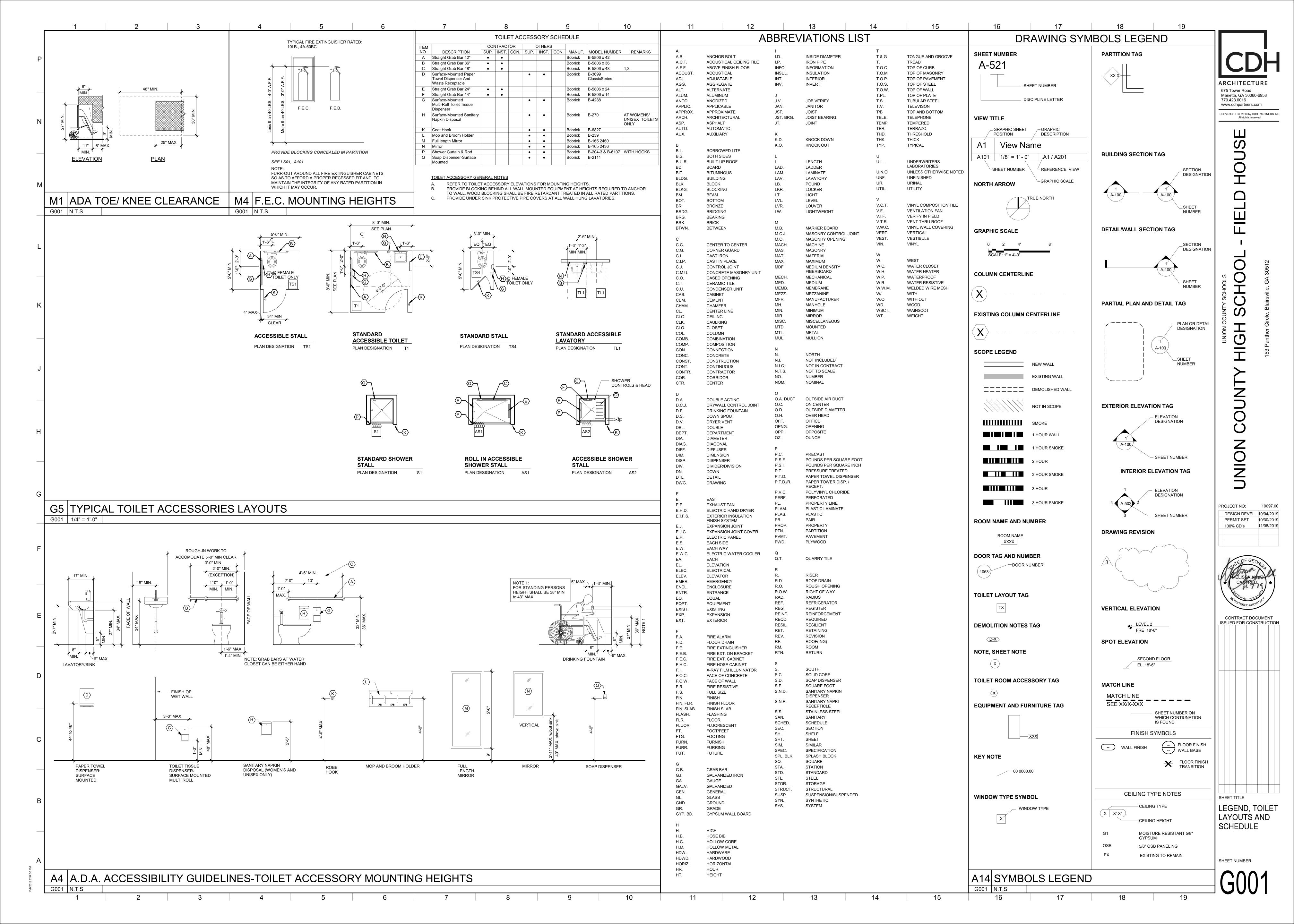
124 Hughes Street

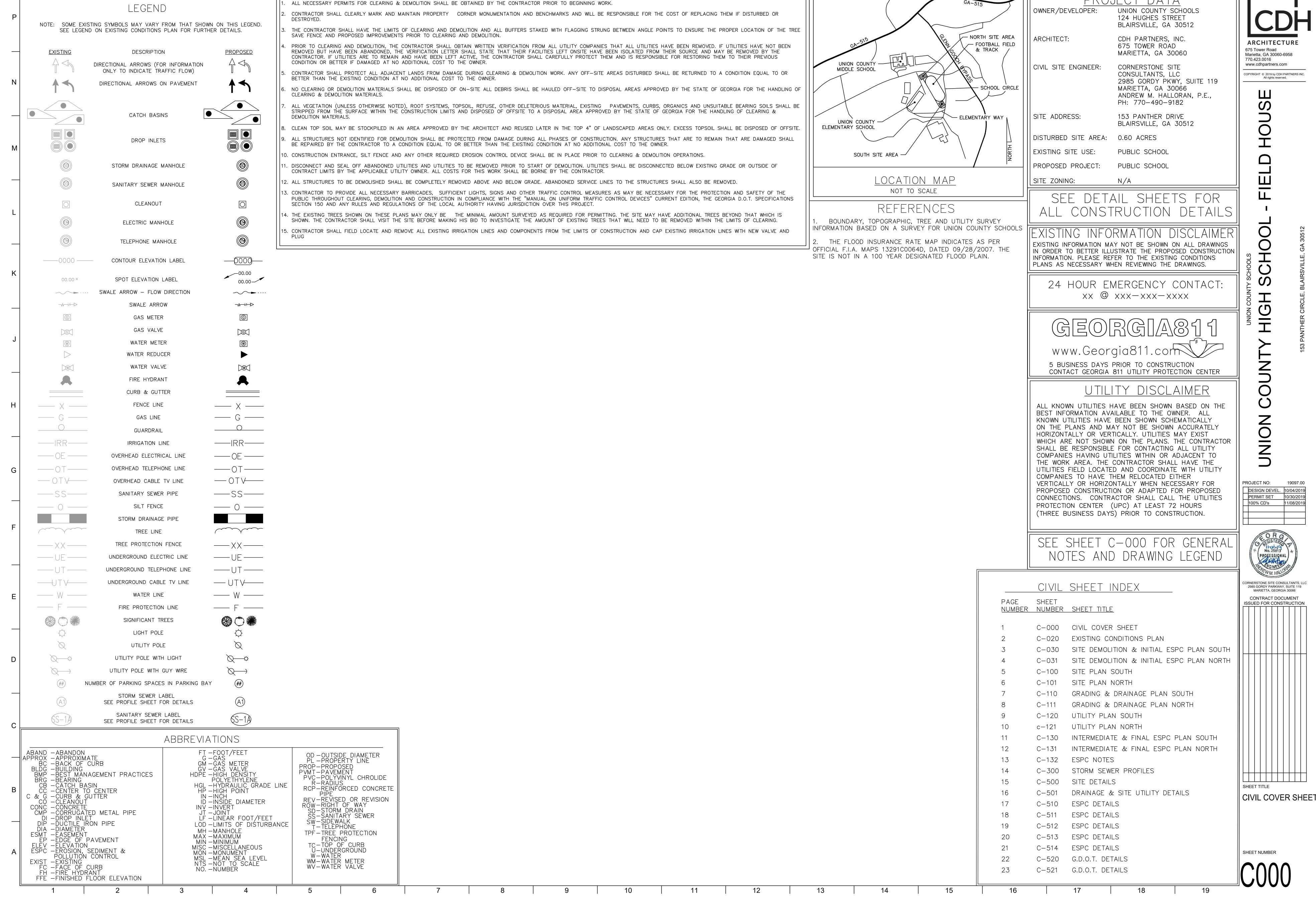
PROJECT NO: DESIGN DEVEL. 10/04/2019 100% CD's



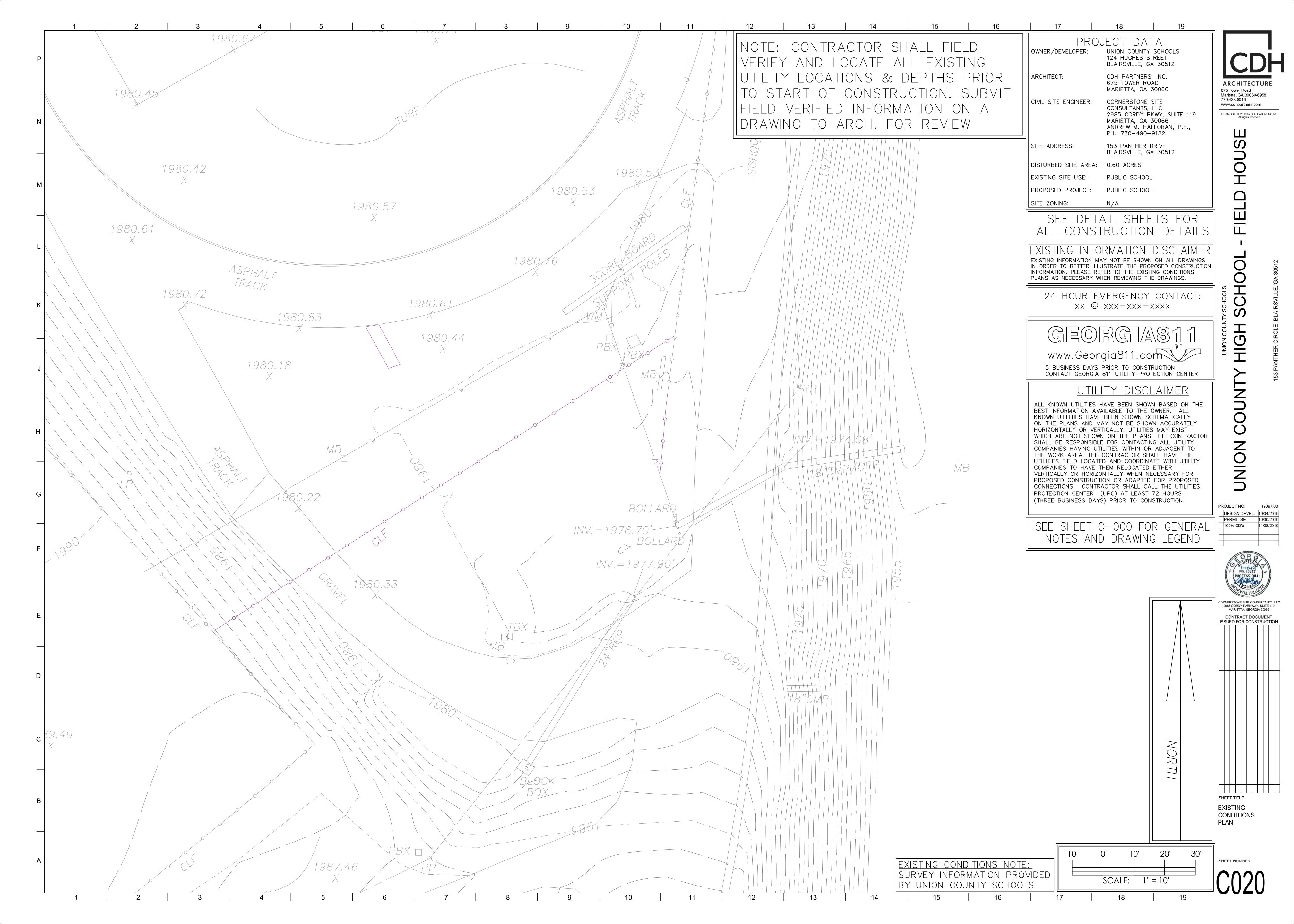
**ISSUED FOR CONSTRUCTION** 

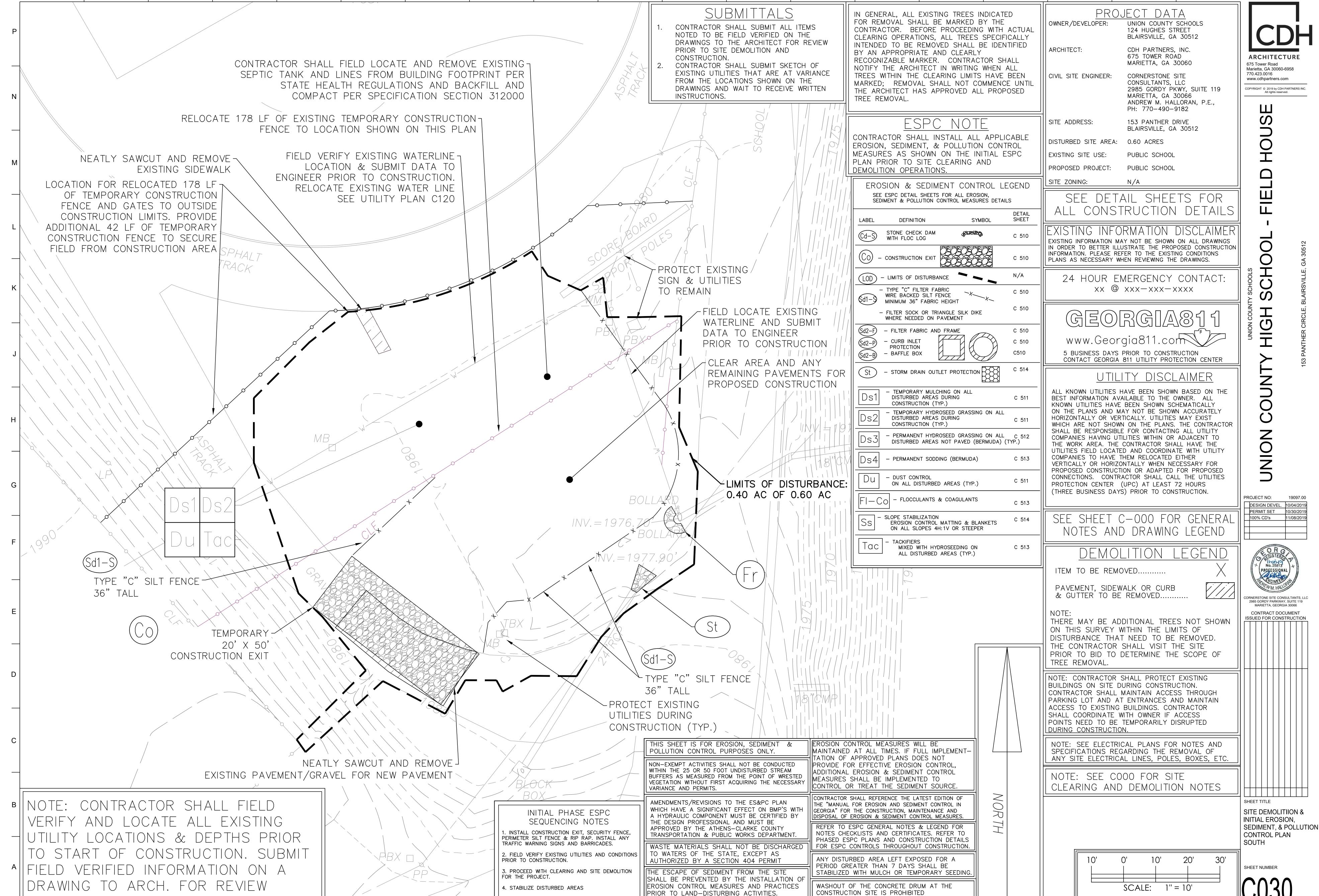
SHEET TITLE SHEET

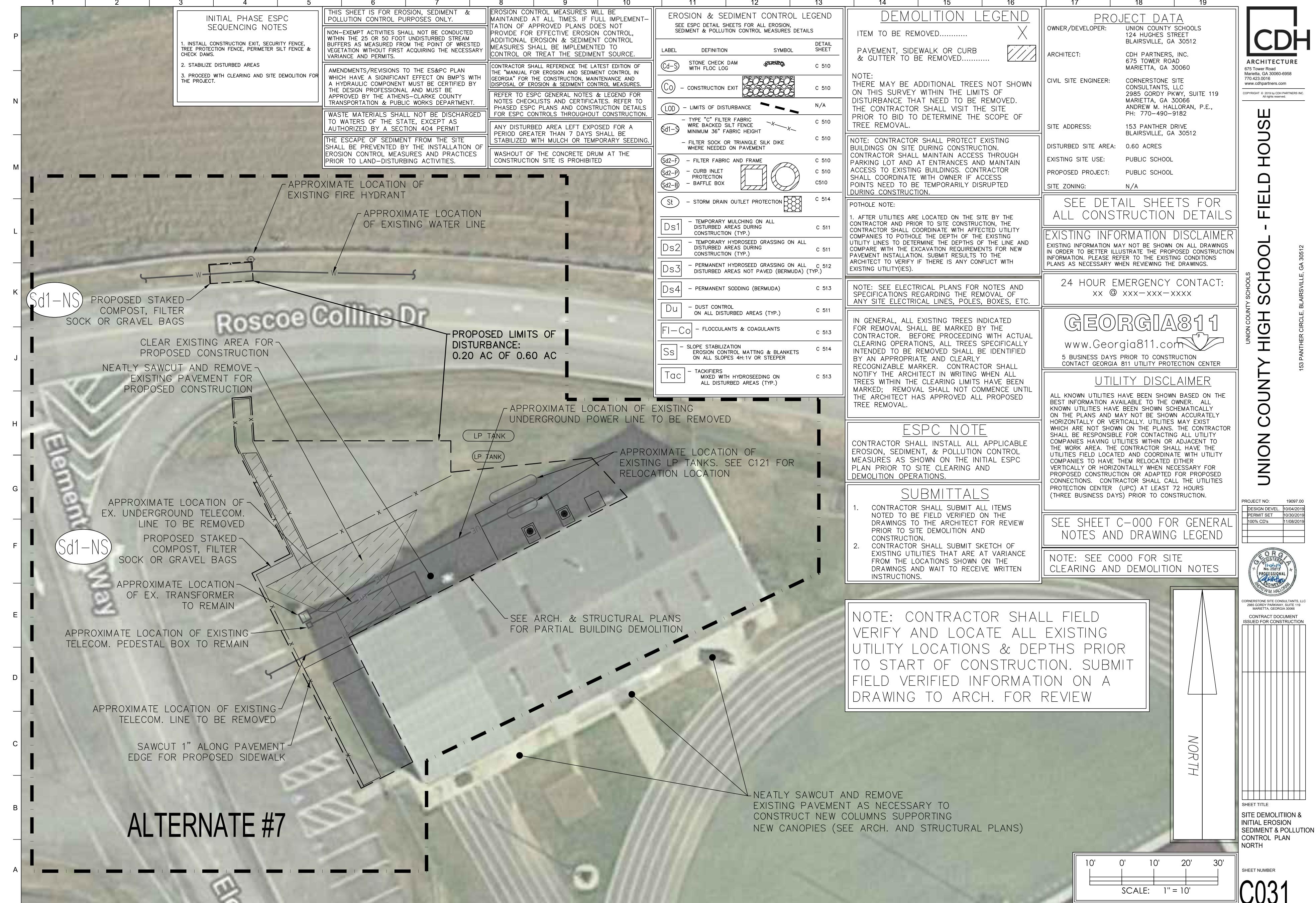


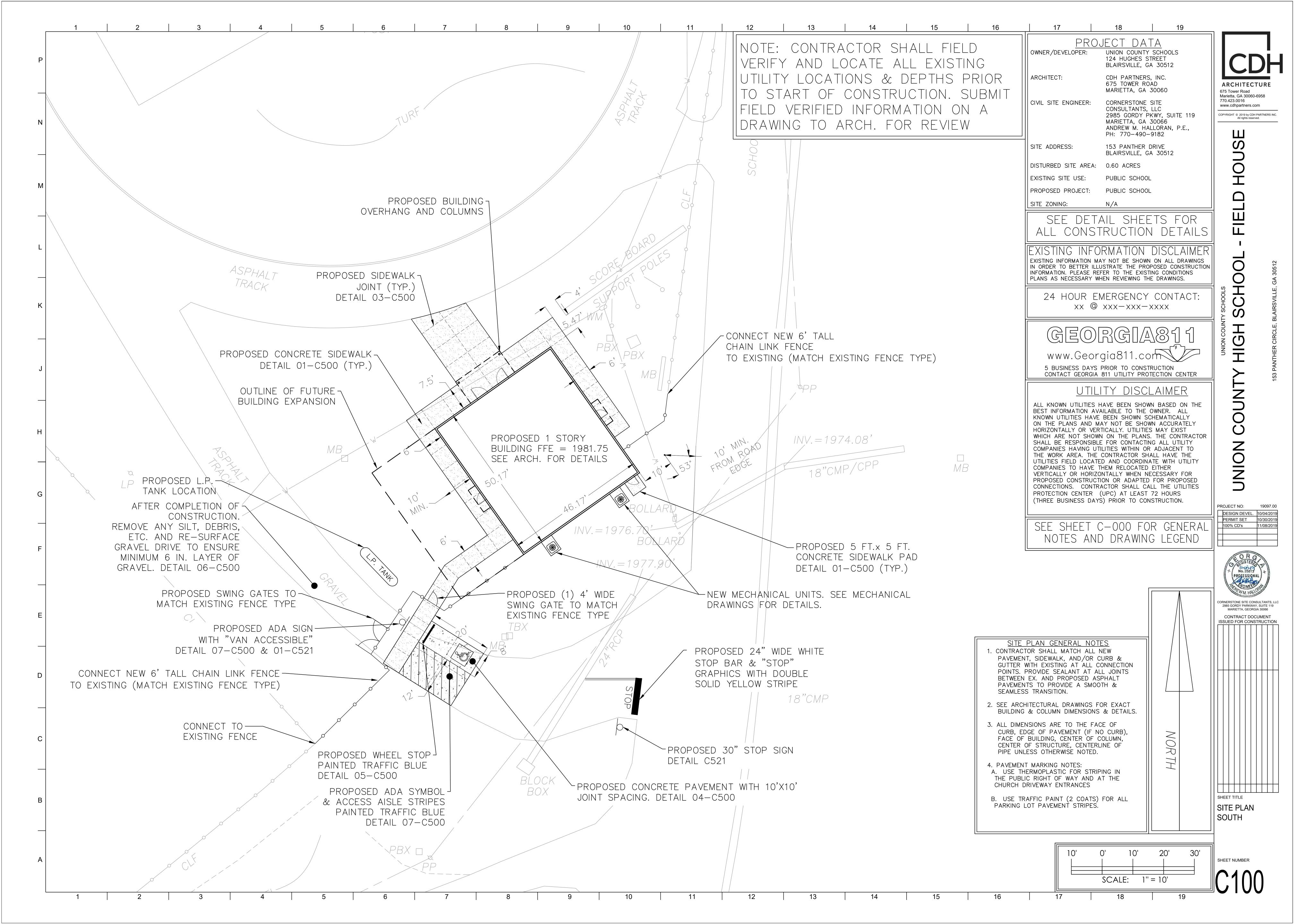


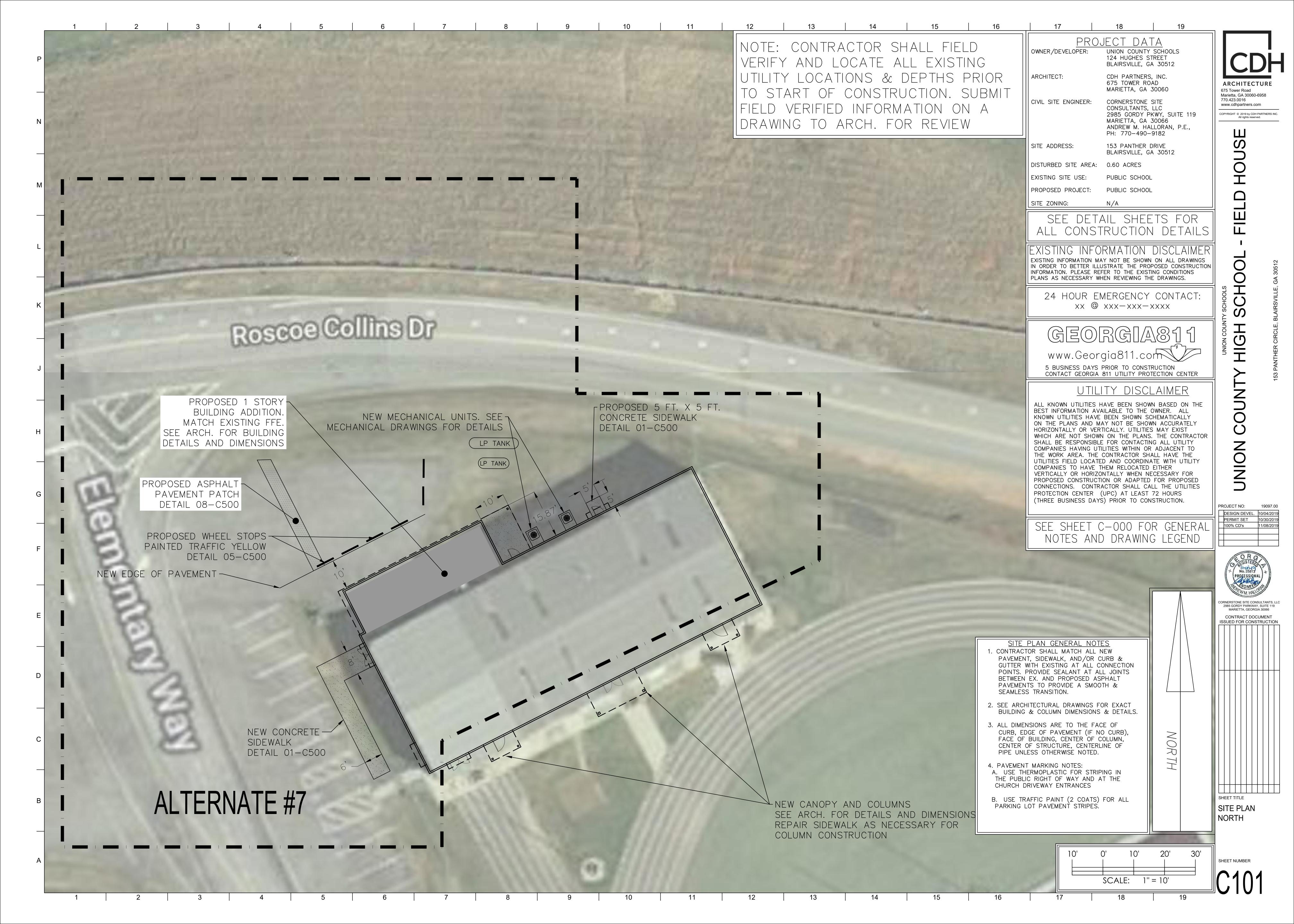
SITE CLEARING & SITE DEMOLITION NOTES

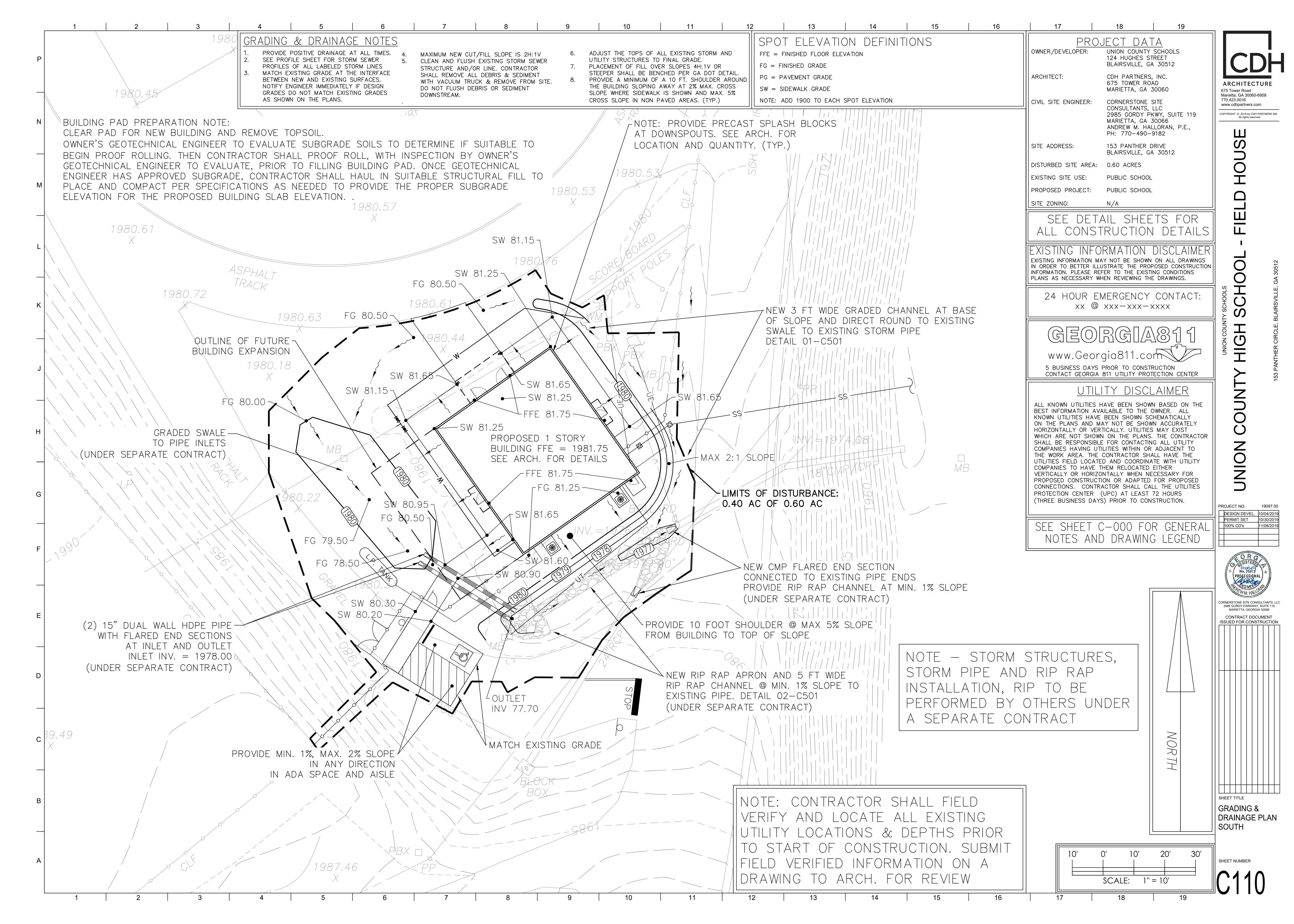


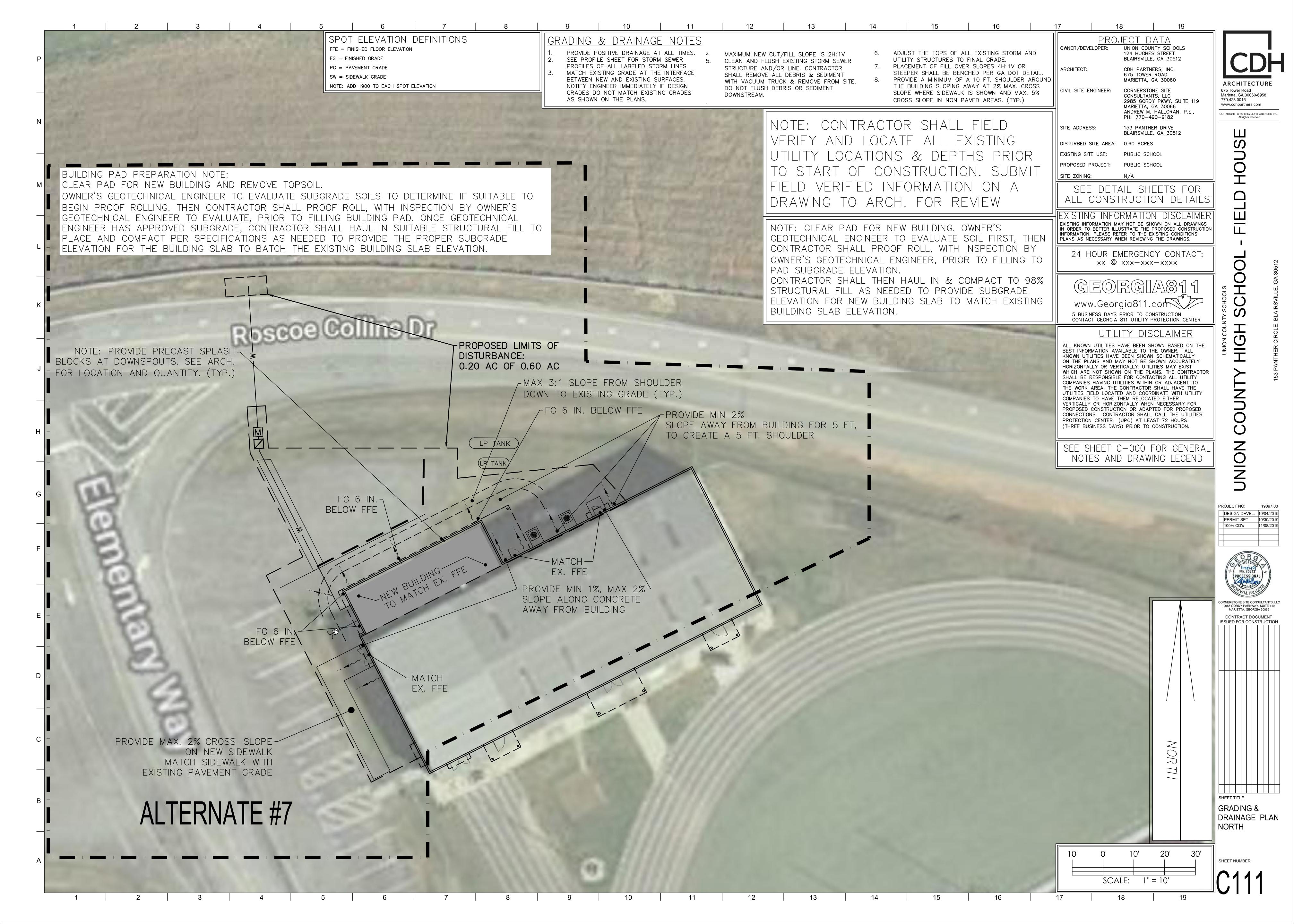


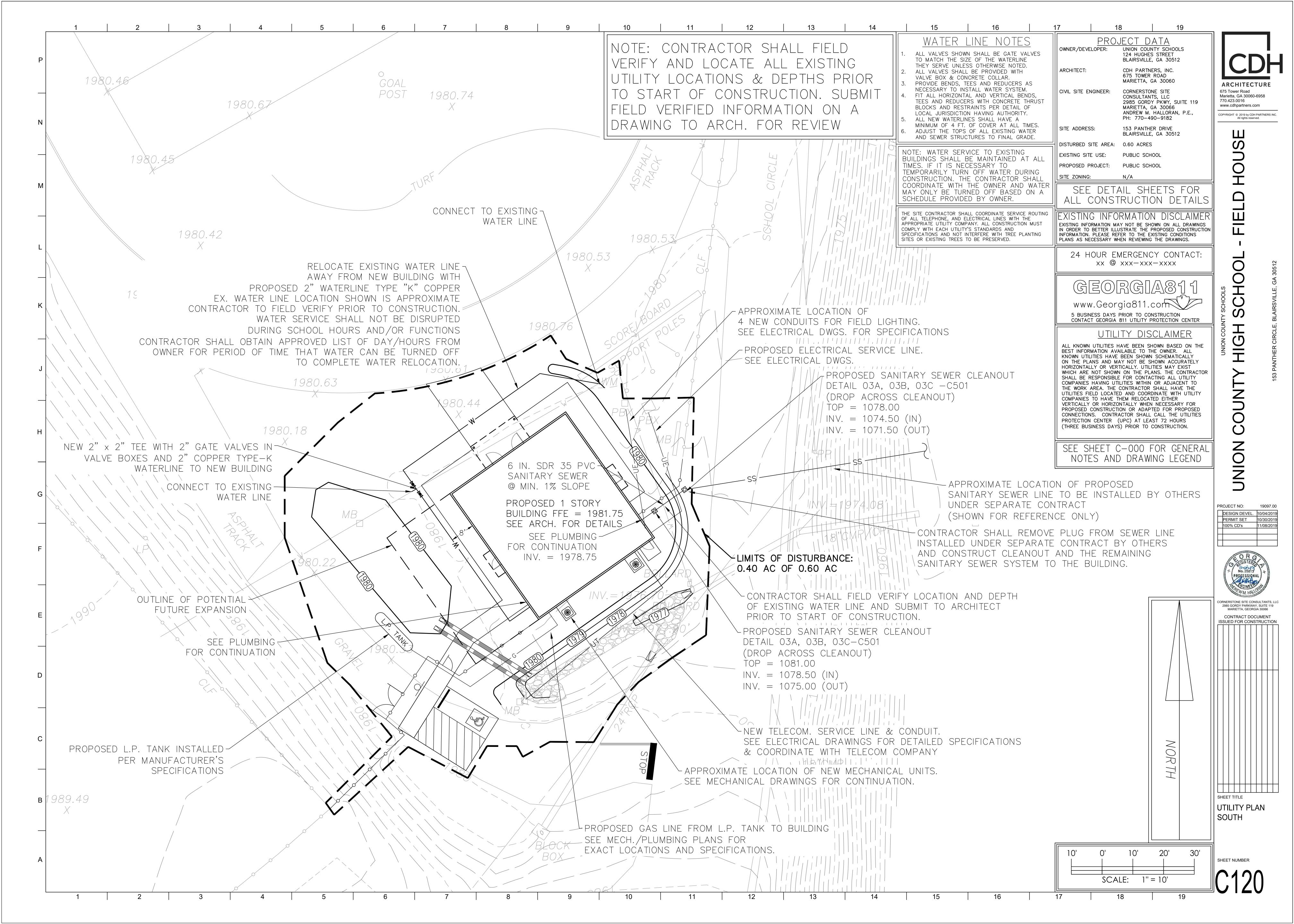


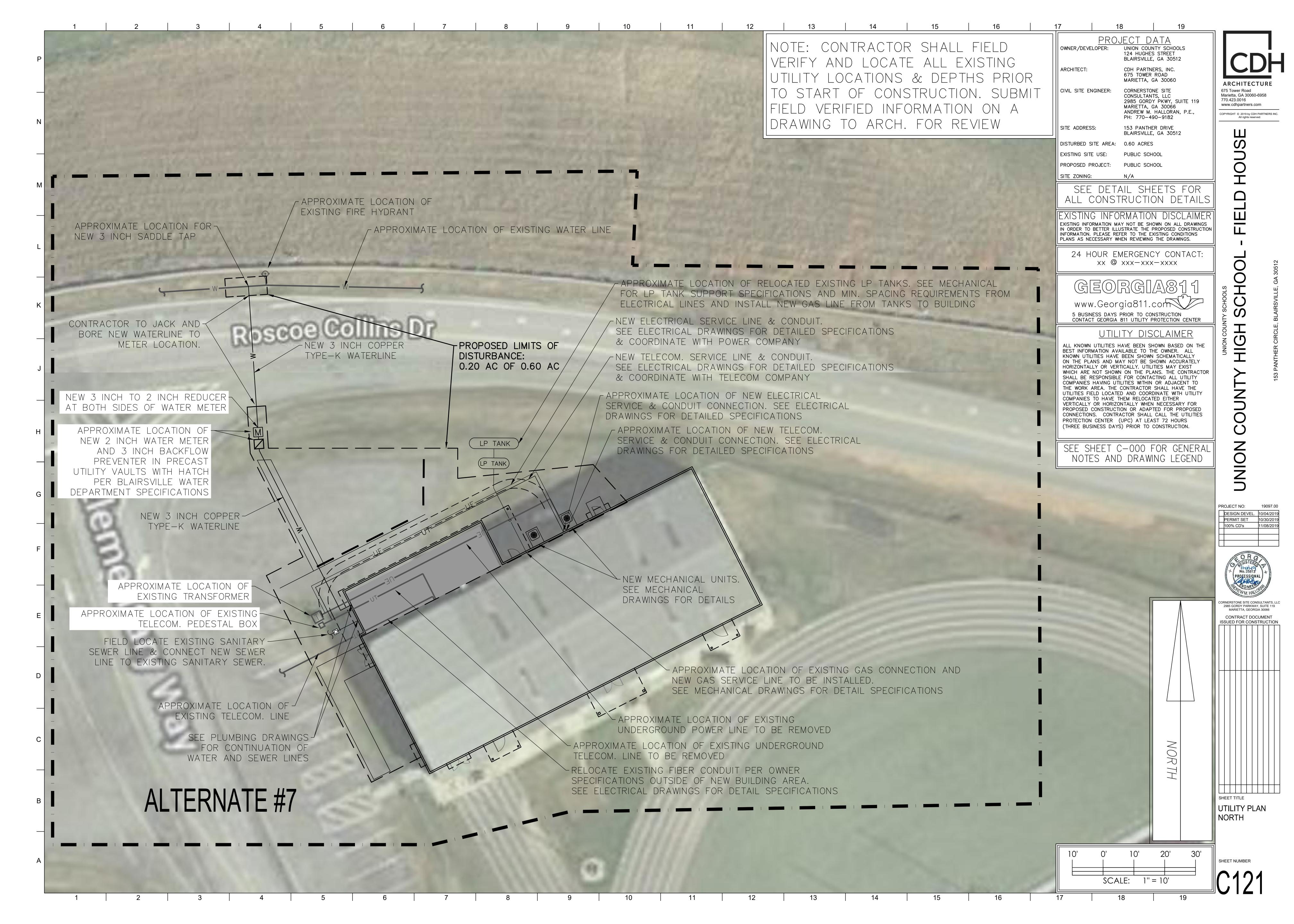


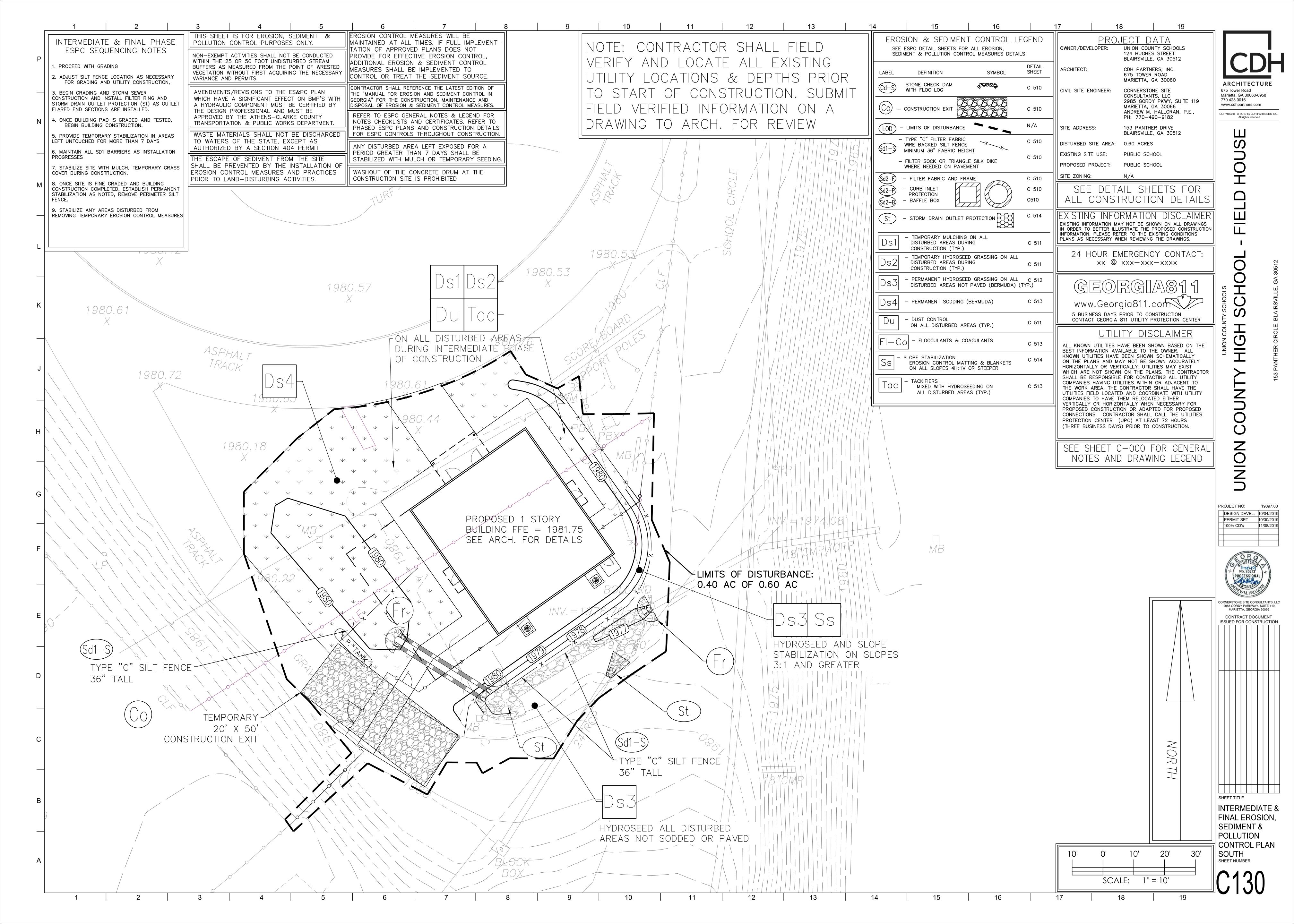


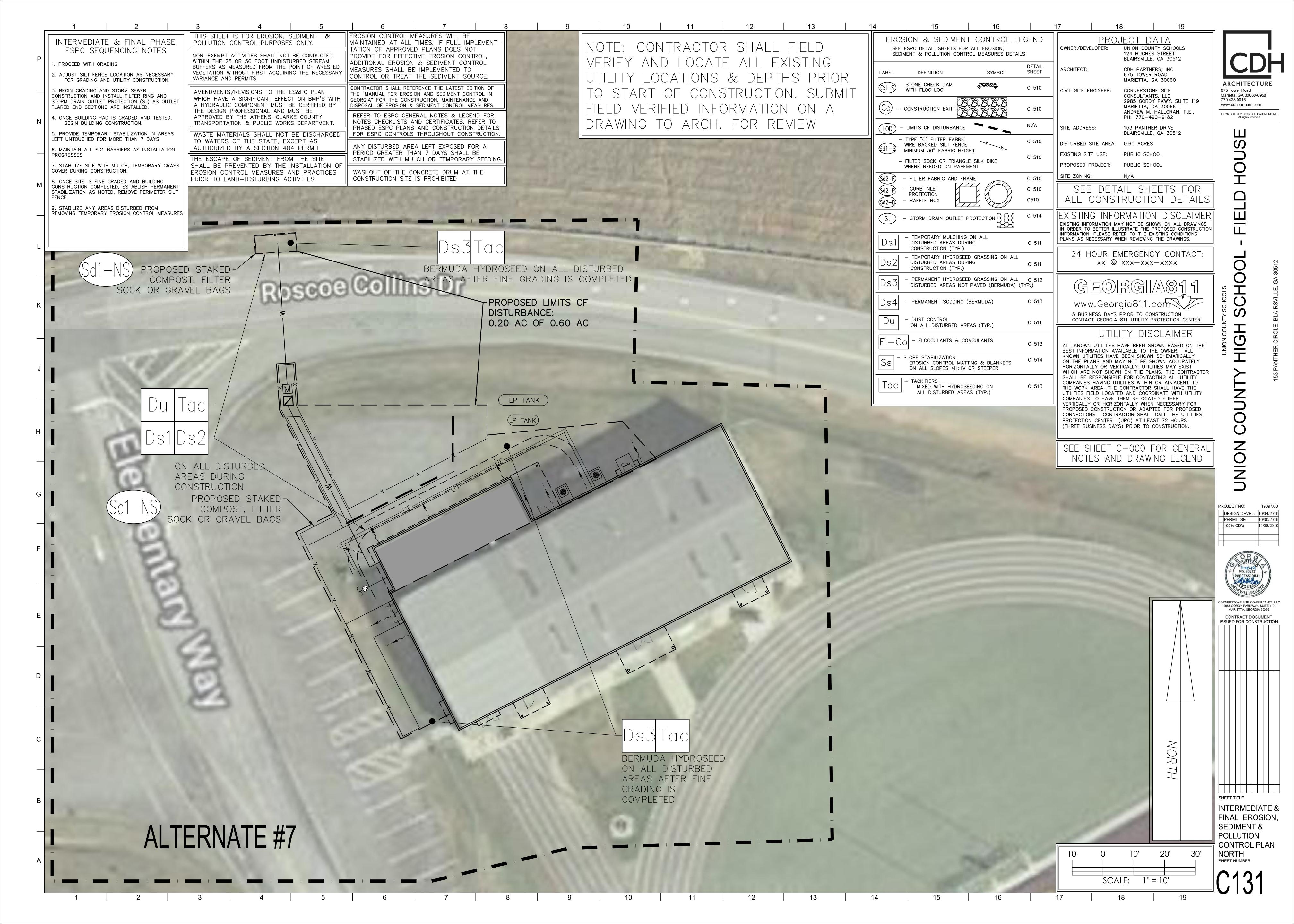












1. LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND PROCEDURES WILL BE MADE AVAILABLE TO SITE

2. MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES. BUT IS

5. FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS

8. FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS OCCUR, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS

9. THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1320 GALLONS OF PETROLEUM IS STORED ONSITE (THIS

INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL

4. ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS WILL BE REPORTED AS REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS.

3. SPILL PREVENTION PRACTICES AND PROCEDURES WILL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.

6. FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-426-2675

PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

7. FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS OCCUR, THE GEORGIA E.P.D. WILL BE CONTACTED WITHIN 24 HOURS.

NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST AND PROPERLY LABELED PLASTIC AND METAL WASTE CONTAINERS.

PERSONNEL.

REQUIRED.

AT 1-800-426-2675

CONSTRUCTION SITE. ALL PERSONAL SHALL BE INFORMED AND INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE CONTRACTOR.

INSURING THAT THESE PROCEDURES ARE ENFORCED.

REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS

HEADS, ETC.)

NOTICES STATING THESE PROCEDURES SHALL BE POSTED IN THE CONSTRUCTION OFFICE AND THE CONSTRUCTION SUPERINTENDENT SHALL BE RESPONSIBLE FOR

THE CONTRACTOR SHALL INSTALL AND MAINTAIN AN AN UPLAND AREA FOR STORAGE OF ALL HAZARDOUS AND PETROLEUM MATERIALS. THE AREA SHALL BE

ALL SANITARY WASTE SHALL BE COLLECTED FROM PORTABLE UNITS AS NECESSARY, BY A STATE LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR OR AS

TEMPORARY FUELING TANKS SHALL HAVE A GEORGIA E.P.D. APPROVED SECONDARY CONTAINMENT (LINER SYSTEM) BASIN TO PREVENT AND/OR MINIMIZE SITE

CONTAMINATION. TEMPORARY FUELING TANK LOCATIONS SHALL BE LOCATED AWAY FROM DRAINAGE WAYS, DRAINAGE SYSTEMS AND STATE WATERS (STREAMS, SPRING

INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR HAZARDOUS WASTE DISPOSAL BY THE CONTRACTOR. NOTICES STATING THE PROCEDURE SHALL POSTED IN

PROTECTED FROM STORM WATER RUNOFF LEAVING THE AREA AND DISCHARGING INTO AND NATURAL DRAINAGE WAY OR WATERWAY. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN A MANNER SPECIFIED BY STATE SOLID WASTE MANAGEMENT REGULATIONS. ALL PERSONAL SHALL BE INFORMED AND

THE CONSTRUCTION OFFICE & THE CONSTRUCTION SUPERINTENDENT SHALL BE RESPONSIBLE FOR INSURING THE PROCEDURES ARE ENFORCED.

HAZARDOUS WASTE

SANITARY WASTE

TEMPORARY FUELING TANK AREAS

**ARCHITECTURE** 675 Tower Road

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CONSULTANTS, LLC 2985 GORDY PKWY, SUITE 119 MARIETTA, GA 30066 ANDREW M. HALLORAN, P.E., PH: 770-490-9182

UNION COUNTY SCHOOLS

124 HUGHES STREET BLAIRSVILLE, GA 30512

CDH PARTNERS, INC.

675 TOWER ROAD MARIETTA, GA 30060

CORNERSTONE SITE

153 PANTHER DRIVE

PUBLIC SCHOOL

PUBLIC SCHOOL

BLAIRSVILLE, GA 30512

EXISTING SITE USE:

SEE DETAIL SHEETS FOR

EXISTING INFORMATION MAY NOT BE SHOWN ON ALL DRAWINGS IN ORDER TO BETTER ILLUSTRATE THE PROPOSED CONSTRUCTION INFORMATION. PLEASE REFER TO THE EXISTING CONDITIONS

24 HOUR EMERGENCY CONTACT: xx @ xxx-xxx-xxxx

GEORGIA8'

www.Georgia811.com 5 BUSINESS DAYS PRIOR TO CONSTRUCTION CONTACT GEORGIA 811 UTILITY PROTECTION CENTER

#### UTILITY DISCLAIMER

ALL KNOWN UTILITIES HAVE BEEN SHOWN BASED ON THE BEST INFORMATION AVAILABLE TO THE OWNER. ALL KNOWN UTILITIES HAVE BEEN SHOWN SCHEMATICALLY ON THE PLANS AND MAY NOT BE SHOWN ACCURATELY HORIZONTALLY OR VERTICALLY. UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES HAVING UTILITIES WITHIN OR ADJACENT TO THE WORK AREA. THE CONTRACTOR SHALL HAVE THE UTILITIES FIELD LOCATED AND COORDINATE WITH UTILITY COMPANIES TO HAVE THEM RELOCATED EITHER VERTICALLY OR HORIZONTALLY WHEN NECESSARY FOR PROPOSED CONSTRUCTION OR ADAPTED FOR PROPOSED CONNECTIONS. CONTRACTOR SHALL CALL THE UTILITIES PROTECTION CENTER (UPC) AT LEAST 72 HOURS (THREE BUSINESS DAYS) PRIOR TO CONSTRUCTION.

SEE SHEET C-000 FOR GENERAL NOTES AND DRAWING LEGEND

> PROJECT NO: 19097.00 PERMIT SET 100% CD's

> > PROFESSIONAL



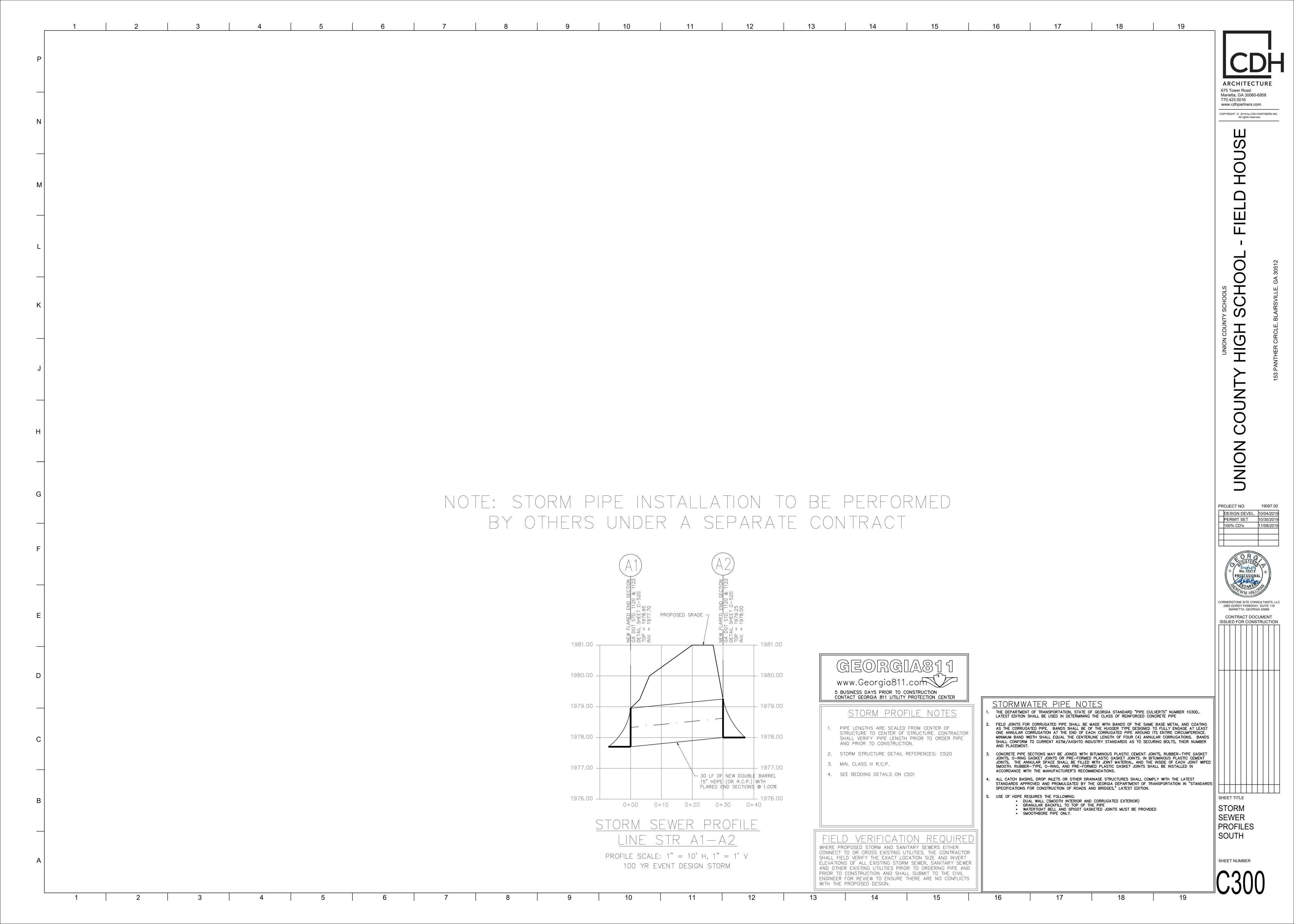
- 2. THE INSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL OCCUR PRIOR TO OR CONCURRENT WITH LAND DISTURBING ACTIVITIES.
- 3. EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES TO BE INSPECTED DAILY. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS
- 4. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES SHALL BE
- WHEN SOIL IS STOCKPILED OR TRENCH EXCAVATION IS STOCKPILED BESIDE THE TRENCH FOR MORE THAN 24 HOURS, OR WHEN RAINFALL IS ANTICIPATED, SILT FENCES WILL BE INSTALLED AROUND THE LIMITS OF THE STOCKPILE AND THE STOCKPILE SHALL BE COVERED WITH STAKED PLASTIC COVERING OR SIMILAR MATERIAL TO CONTROL SEDIMENT.
- 6. CONTRACTOR STAGING AREAS WILL BE STABILIZED AND CONTROLLED WITH SILT FENCES AROUND THE PERIMETER OF THE AREAS AS REQUIRED.
- INLET SEDIMENT TRAPS WILL BE INSTALLED AT EACH NEW INLET IMMEDIATELY UPON INSTALLATION OF THE BASE STRUCTURE WITH Sd2-F OR Sd2-Sa AS SPECIFIED. ONCE INLET TOPS ARE INSTALLED ALONG CURB AND GUTTER PROVIDE Sd2-P. THESE WILL BE MAINTAINED AS REQUIRED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
- 8. DISTURBED AREA IS DEFINED BY THE LIMITS OF DISTURBANCE SHOWN ON THESE PLANS.
- 9. CONTRACTOR SHALL PROVIDE TEMPORARY BERMS ALONG THE TOP OF FILL SLOPES TO PREVENT THE FORMATION OF RILLS AND GULLIES. GRADE BERMS AND TOP-OF-SLOPE TO DRAIN LATERALLY TO COLLECTION POINTS (Di). INSTALL APPROPRIATELY SIZED SEDIMENT TRAP AND DOWN-DRAIN PIPE AT EACH COLLECTION POINT TO TRAP SEDIMENT AND TO DRAIN DIVERTED RUNOFF DOWN SLOPE. LOCATE DOWN-DRAIN DISCHARGE POINT TO PREVENT ADDITIONAL EROSION OR SEDIMENTATION. UPON COMPLETION OF SITE CONSTRUCTION AND STABILIZATION OF DISTURBED AREAS. BERMS AND DOWN DRAINS MAY BE REMOVED AND EXPOSED AREAS ALSO STABILIZED. ADJUST MEASURES AS GRADING PROGRESSES.
- 10. SEE SHEET ESPC DETAIL SHEET FOR CONCRETE WASHDOWN AREA & TEMPORARY FUEL TANK STORAGE DETAILS AND POLLUTION CONTROL NOTES.

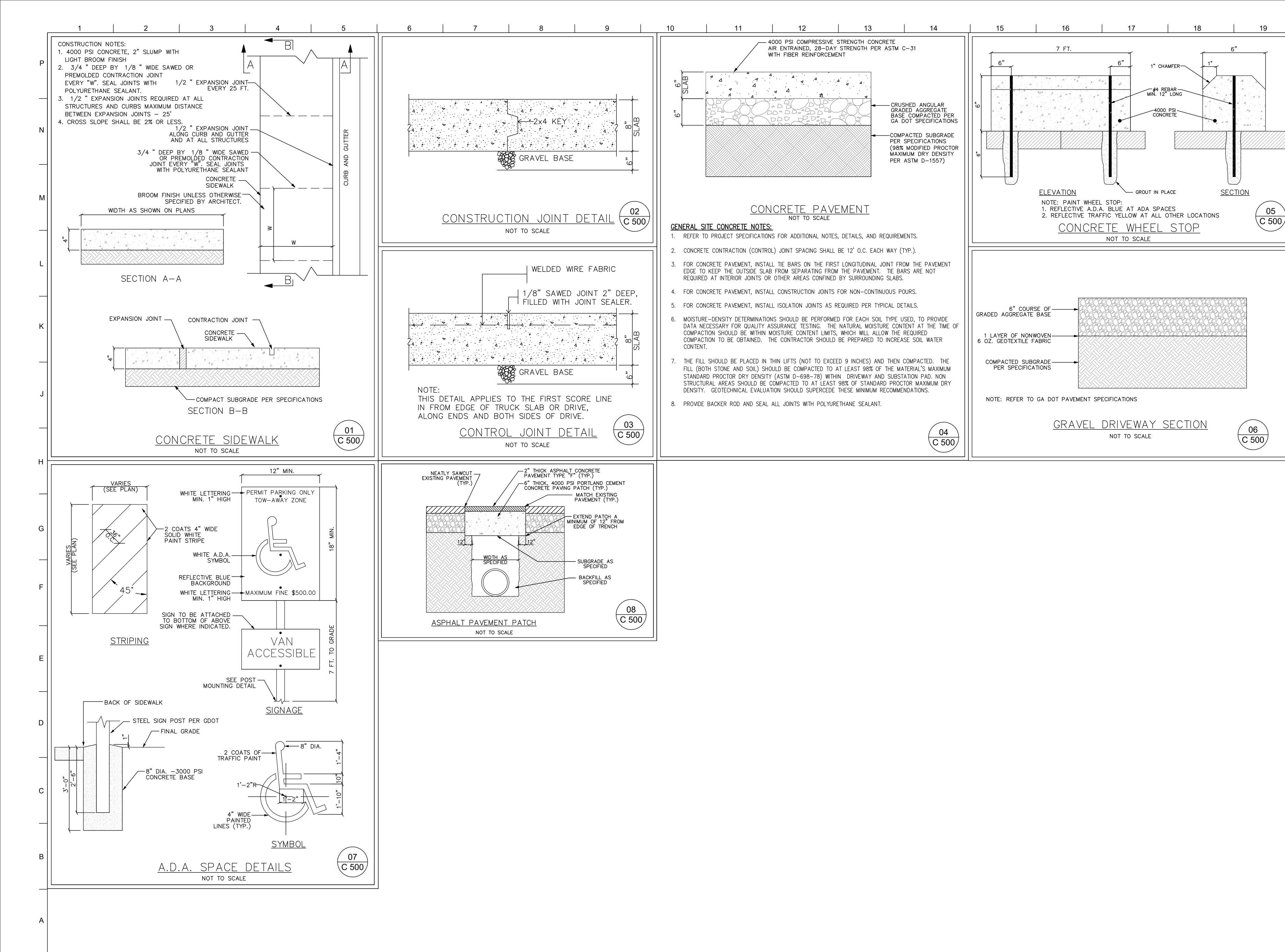
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- 11. PROVIDE FLOC LOGS IN DRAINAGE CHANNELS DOWNSTREAM OF CHECK DAMS, IN STORM SEWER INLETS AND DOWNSTREAM OF OUTLET RIP RAP APRONS PER DETAIL SHOWN ON ESPC DETAIL SHEET.
- 12. SEQUENCING OF THE PROJECT MAY DELAY THE NEED FOR INSTALLATION OF ESPC MEASURES SPECIFIED ON THIS PLAN. CONSULT WITH CIVIL ENGINEER TO DISCUSS WHICH MEASURES MAY BE DELAYED AND IN CASE ESPC PLAN REVISIONS ARE NECESSARY.
- 13. DO NOT ALLOW DRAINAGE INTO THE BIORETENTION AREA UNTIL THE SITE UPSTREAM IS STABILIZED.
- 14. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL MONITORING OF STORM WATER RUNOFF AS DICTATED BY THE GENERAL PERMIT NO. GAR1000001. ALL COSTS ARE TO BE INCLUDED IN BASE BID. CONTRACTOR IS RESPONSIBLE FOR MONITORING FROM THE TIME LAND DISTURBING ACTIVITIES BEGIN UNTIL THE TIME "NOTICE OF TERMINATION" IS FILED. CONTRACTOR TO REFER TO EROSION CONTROL PLANS, NOTES, SHEETS, DETAILS AND GENERAL PERMIT NO. GAR 1000001 FOR ADDITIONAL NOTES AND INFORMATION.

MARIETTA, GEORGIA 30066 CONTRACT DOCUMENT ISSUED FOR CONSTRUCTION SHEET TITLE

EROSION, SEDIMENT & POLLUTION **CONTROL NOTES** 





**ARCHITECTURE** 675 Tower Road Marietta, GA 30060-6958 770.423.0016

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PROJECT NO: DESIGN DEVEL. 10/04/2019 PERMIT SET 100% CD's

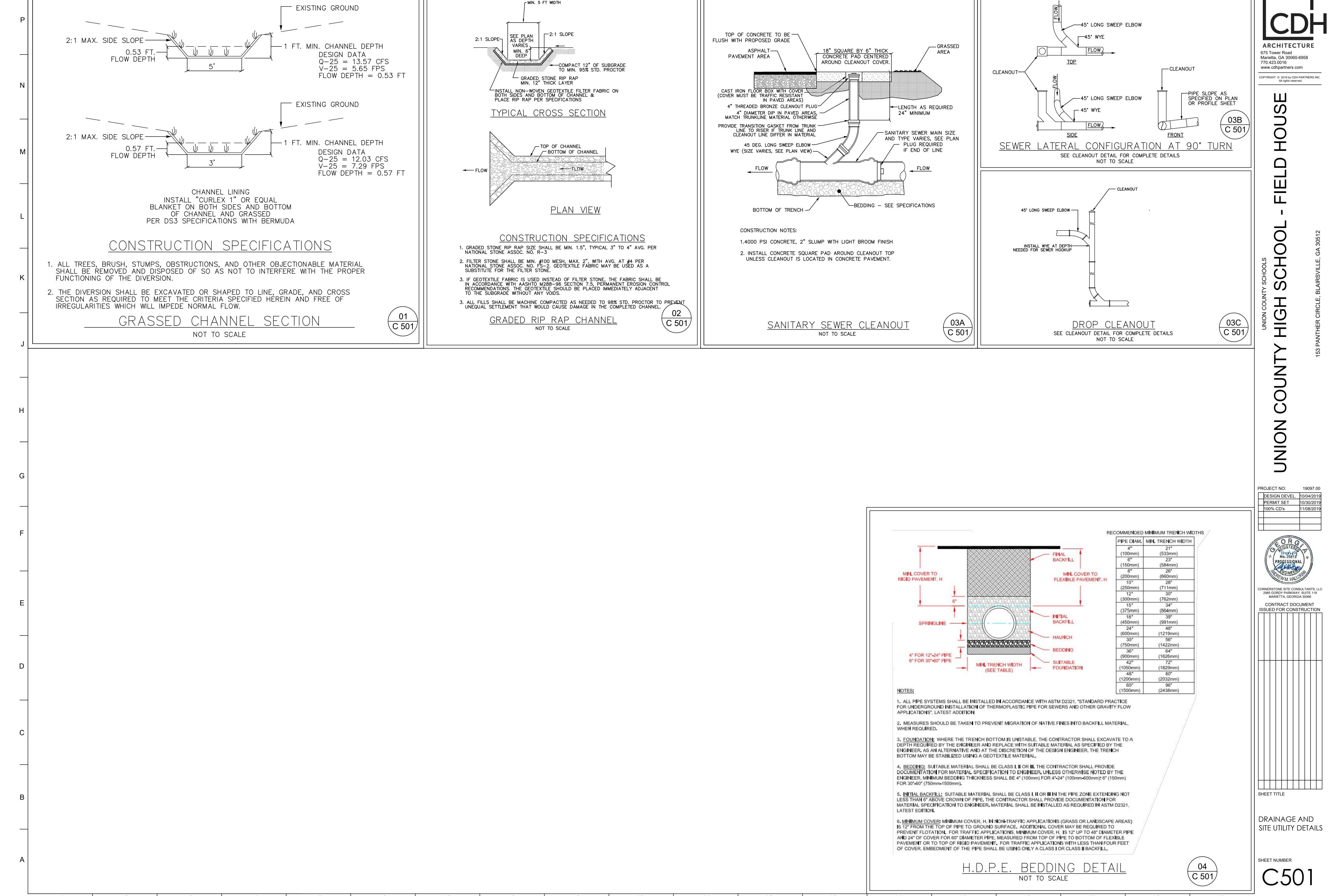


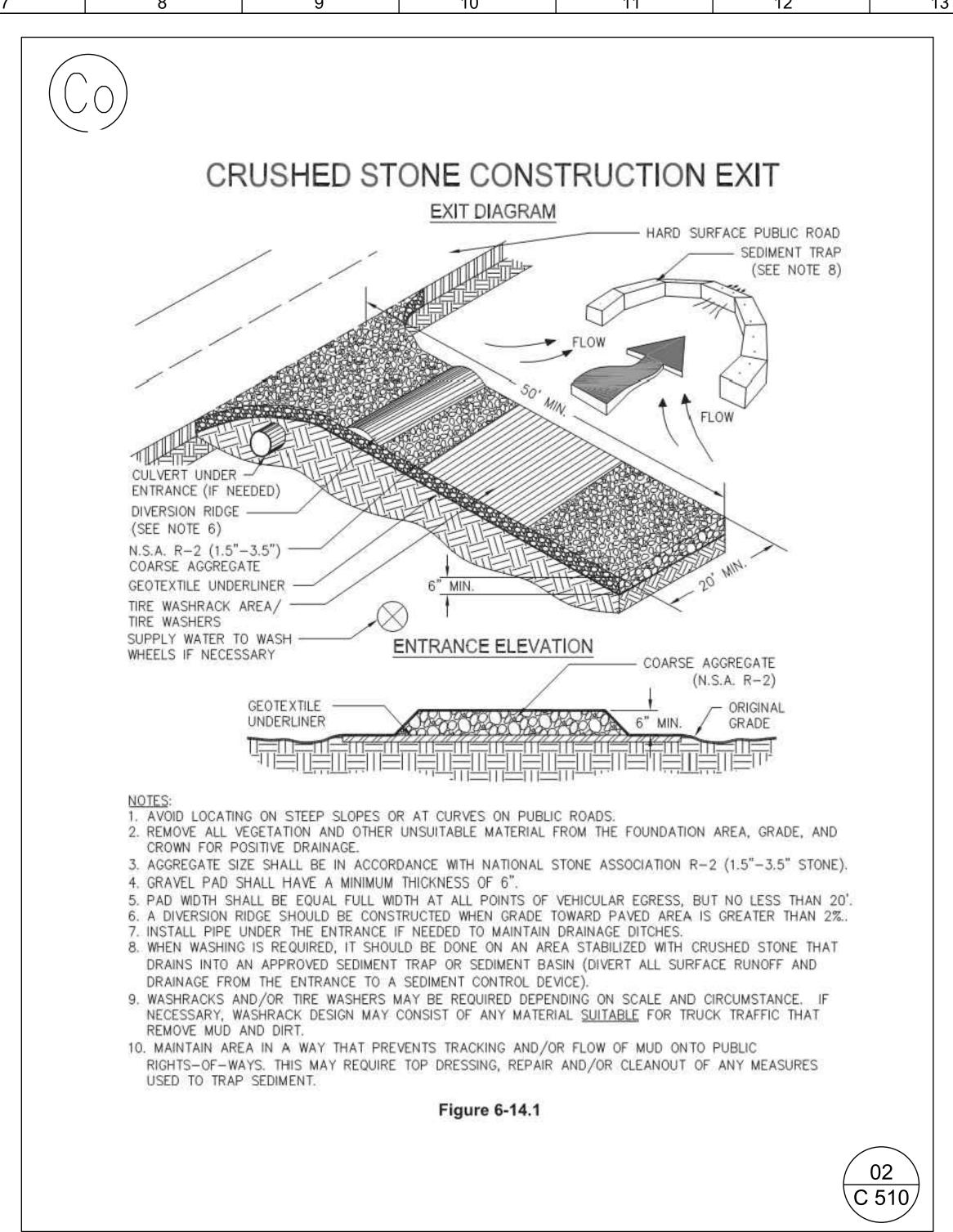
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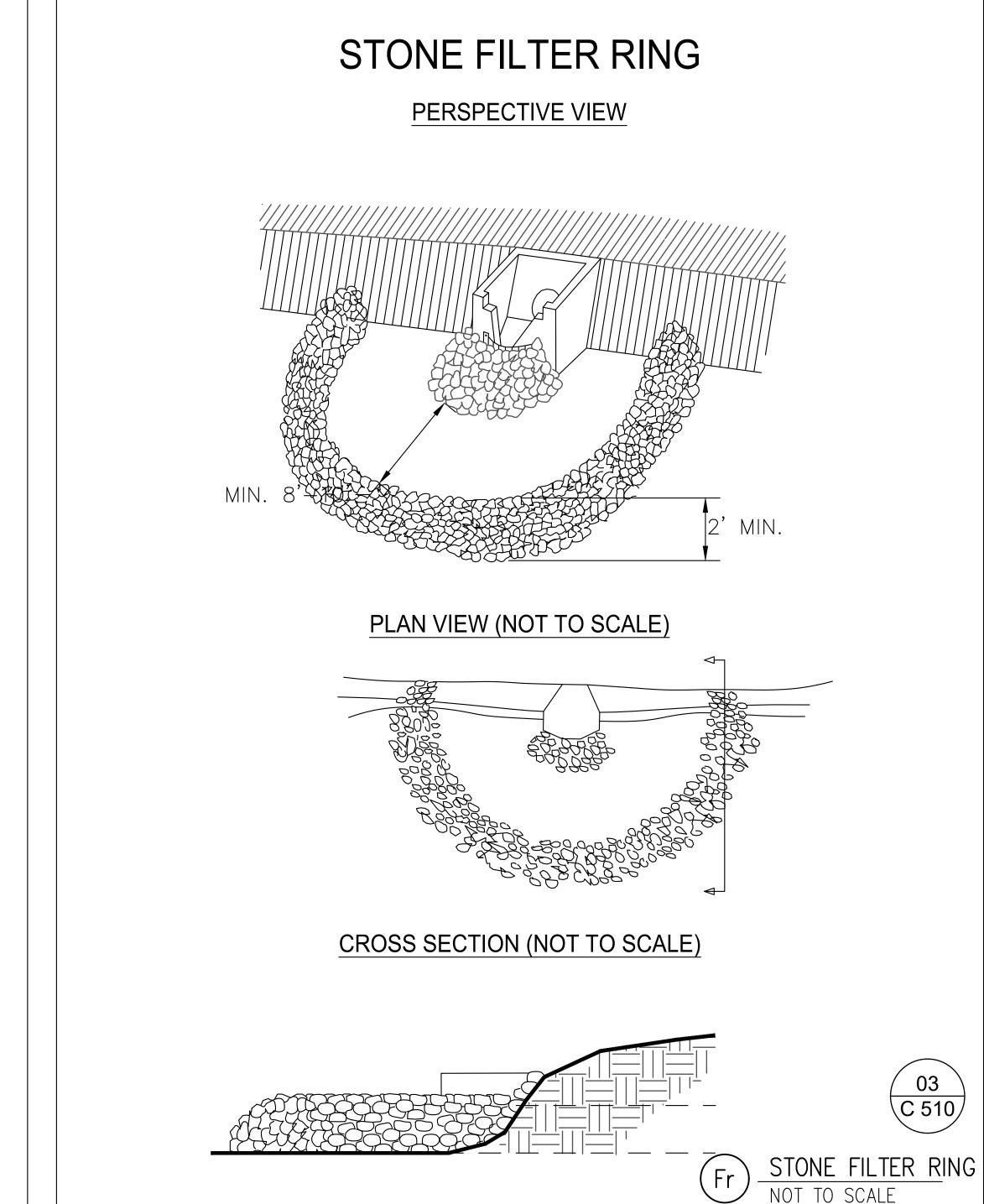
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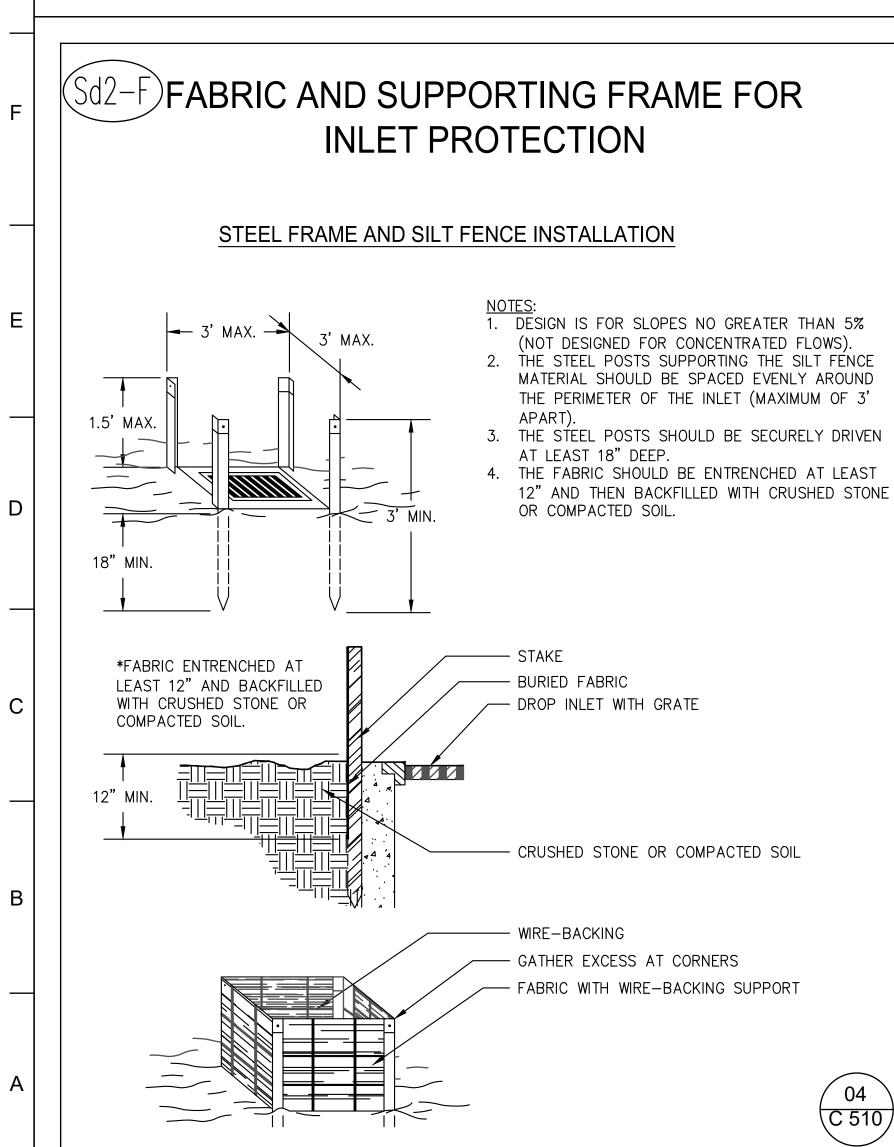
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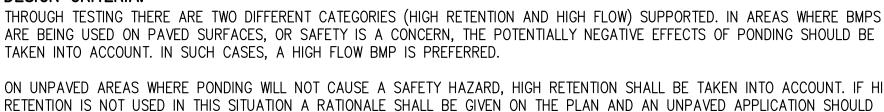
C500











ON UNPAVED AREAS WHERE PONDING WILL NOT CAUSE A SAFETY HAZARD, HIGH RETENTION SHALL BE TAKEN INTO ACCOUNT. IF HIGH RETENTION IS NOT USED IN THIS SITUATION A RATIONALE SHALL BE GIVEN ON THE PLAN AND AN UNPAVED APPLICATION SHOULD

ON UNPAVED AREAS INLET SEDIMENT TRAPS SHALL MEET 90% SOIL RETENTION EFFICIENCY WITH A MINIMUM SEEPAGE EFFICIENCY OF

ON PAVED AREAS OR AREAS WHERE A SAFETY HAZARD IS A SEDIMENT TRAPS SHALL MEET 75% SOIL RETENTION EFFICIENCY WITH A

MINIMUM SEEPAGE OF 85%. SEDIMENT TRAPS MUST BE SELF-DRAINING UNLESS THEY ARE OTHERWISE PROTECTED IN AN APPROVED FASHION THAT WILL NOT

IF RUNOFF MAY BYPASS THE PROTECTED INLET, A TEMPORARY DIKE SHOULD BE CONSTRUCTED ON THE DOWN SLOPE SIDE OF THE STRUCTURE. ALSO, A STONE FILTER RING MAY BE USED ON THE UP SLOPE SIDE OF THE INLET TO SLOW RUNOFF AND FILTER LARGER SOIL PARTICLES. REFER TO FR-STONE FILTER RING.

#### CONSTRUCTION SPECIFICATIONS:

AN EXCAVATION MAY BE CREATED AROUND THE INLET SEDIMENT TRAP TO PROVIDE ADDITIONAL SEDIMENT STORAGE. THE TRAP SHALL BE SIZED TO PROVIDE A MINIMUM STORAGE CAPACITY CALCULATED AT THE RATE OF 67 CUBIC YARDS PER ACRE OF DRAINAGE AREA. A MINIMUM DEPTH OF 1.5 FEET FOR SEDIMENT STORAGE SHOULD BE PROVIDED. SIDE SLOPES SHALL NOT BE STEEPER THAN 2:1.

SEDIMENT TRAPS MAY BE CONSTRUCTED ON NATURAL GROUND SURFACE, ON AN EXCAVATED SURFACE, OR ON MACHINE COMPACTED FILL, PROVIDED THEY HAVE A NON-ERODIBLE OUTLET.

#### FILTER FABRIC WITH SUPPORTING FRAME (Sd2-F)

INCHES DEEP. THE FABRIC SHALL BE 36 INCHES TALL AND ENTRENCHED 12 INCHES AND BACKFILLED WITH CRUSHED STONE OR COMPACTED SOIL. FABRIC AND WIRE SHALL BE SECURELY FASTENED TO THE POSTS, AND FABRIC ENDS MUST BE OVERLAPPED A MINIMUM OF 18 INCHES OR WRAPPED TOGETHER AROUND A POST TO PROVIDE A CONTINUOUS FABRIC BARRIER AROUND THE INLET.

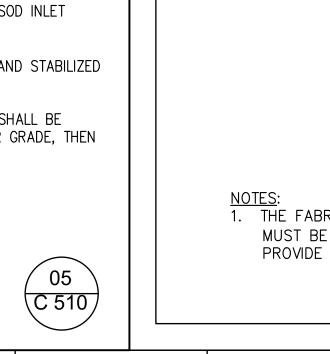
THE TRAP SHALL BE INSPECTED DAILY AND AFTER EACH RAIN, AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN

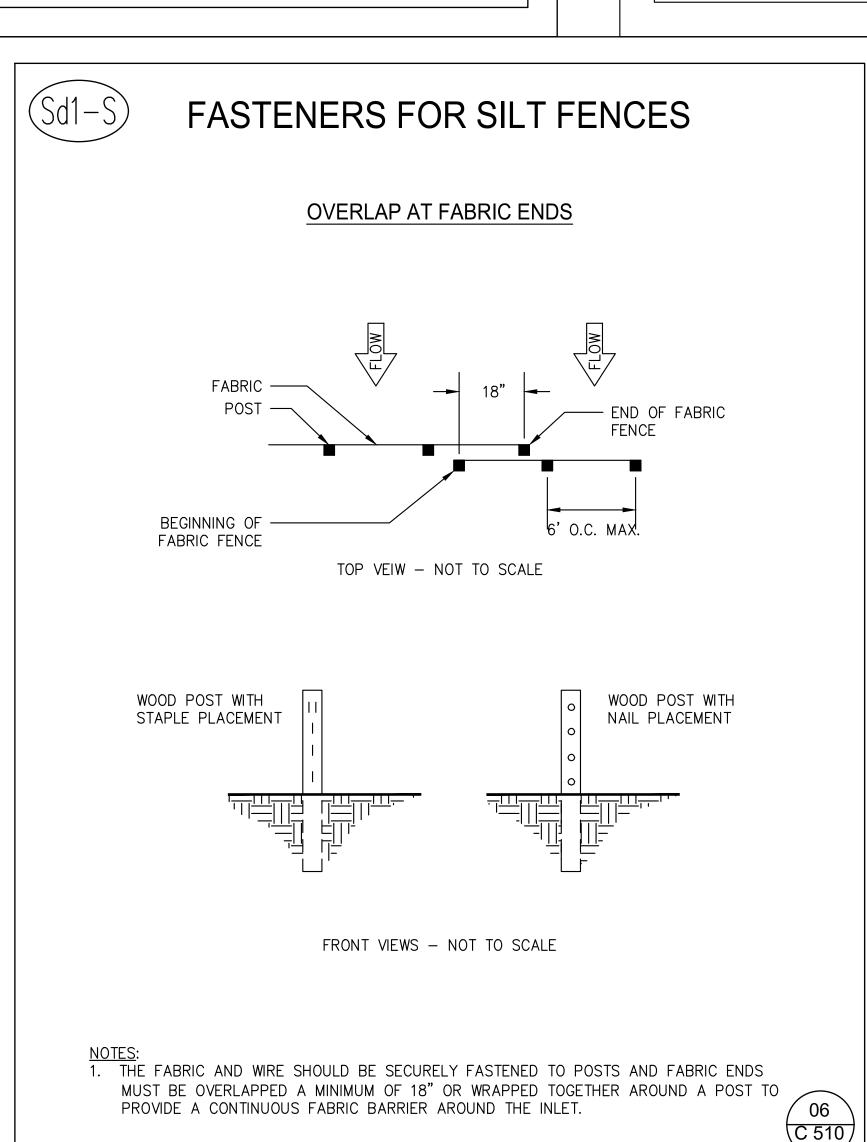
SEDIMENT SHALL BE REMOVED FROM CURB INLET PROTECTION IMMEDIATELY. FOR EXCAVATED INLET SEDIMENT TRAPS, SEDIMENT SHALL BE REMOVED WHEN ONE-HALF OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST TO SEDIMENT ACCUMULATION. SOD INLET PROTECTION SHALL BE MAINTAINED AS SPECIFIED IN DS4 — DISTURBED AREA STABILIZATION (WITH SODDING).

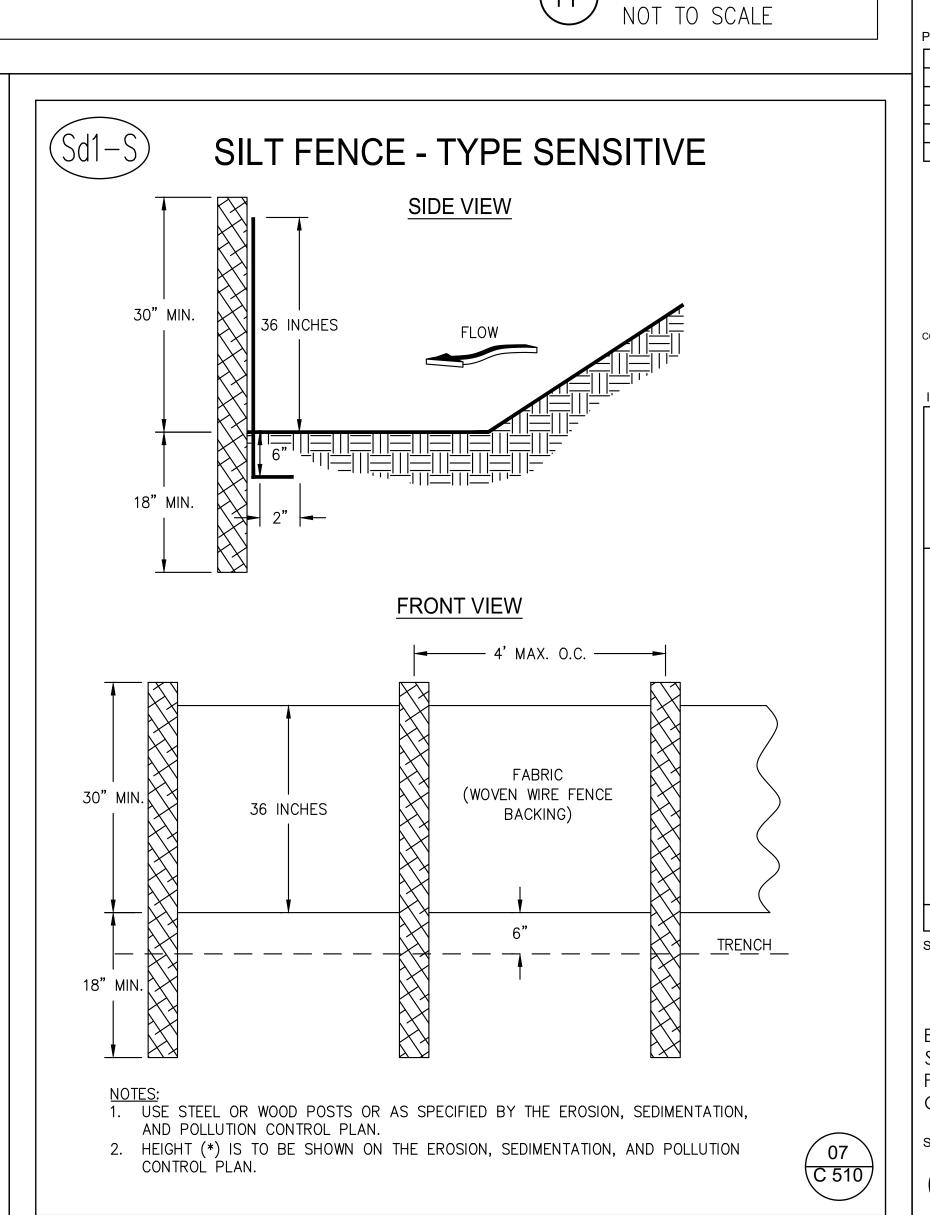
SEDIMENT SHALL NOT BE WASHED INTO THE INLET. IT SHALL BE REMOVED FROM THE SEDIMENT TRAP, DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLET AGAIN.

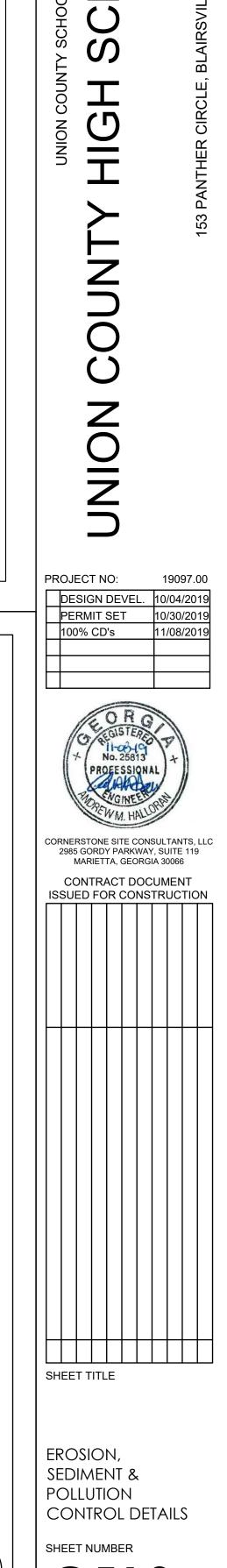
WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, ALL MATERIALS AND ANY SEDIMENT SHALL BE REMOVED, AND EITHER SALVAGED OR DISPOSED OF PROPERLY. THE DISTURBED AREA SHALL BE BROUGHT TO PROPER GRADE, THEN SMOOTHED AND COMPACTED. APPROPRIATELY STABILIZE ALL DISTURBED AREAS AROUND THE INLET.

FILTER FABRIC WITH SUPPORTING FRAME









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Marietta, GA 30060-6958

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#### DEFINITION

Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface.

## PURPOSE

To reduce runoff and erosion

## To conserve moisture

To prevent surface compaction or crusting

#### To control undesirable vegetation

To modify soil temperature

To increase biological activity in the soil

#### REQUIREMENT FOR REGULATORY COMPLIANCE

Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a singular erosion control device for up to six months, but it shall be applied at the appropriate depth, depending on the material used, anchored and have a continuous 90% cover or greater of the soil surface.

Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months.

If any area will remain undisturbed for greater than six months, permanent vegetative techniques shall be employed. Refer to Ds2 -Dis-

GSWCC (Amended - 2013)

turbed Area Stabilization (With Temporary Seeding), Ds3 - Disturbed Area Stabilization (With Permanent Seeding), and Ds4 - Disturbed Area Stabilization (With Sodding).

#### SPECIFICATIONS

Mulching Without Seeding This standard applies to graded or cleared areas where seedings may not have a suitable growing season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

#### Site Preparation

- Grade to permit the use of equipment for applying and anchoring mulch.
- 2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
- Loosen compact soil to a minimum depth of 3 inches.

#### **Mulching Materials**

#### Select one of the following materials and apply at the depth indicated:

- Dry straw or hay shall be applied at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this material is easy application.
- Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
- 3. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and re-used.

## Applying Mulch

When mulch is used without seeding, mulch shall be applied to provide full coverage of the exposed area.

 Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment.



#### 2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.

Apply polyethylene film on exposed areas.

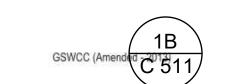
#### Anchoring Mulch

 Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disk." Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application.

Straw or hay mulch spread with special blower-type equipment may be anchored. Tackifers, binders and hydraulic mulch with tackifier specifically desgined for tacking straw can be substituted for emulsified asphalt. Please refer to specification Tac-Tackifers. Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's speci-

2. Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.

3. Polyethylene film shall be anchor trenched at the top as well as incrementally as necessary.



#### **Disturbed Area Stabilization** (With Temporary Ds2 Seeding)



### DEFINITION

10

The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or denuded areas.

#### **PURPOSE**

 To reduce runoff and sediment damage of down stream resources

To protect the soil surface from erosion

To improve wildlife habitat

To improve aesthetics

 To improve tilth, infiltration and aeration as well as organic matter for permanent plantings

## REQUIREMENT FOR REGULATORY

COMPLIANCE Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. If an area is expected to be undisturbed for longer than six months, permanent perennial vegetation shall be used. If optimum planting conditions for temporary grassing is lacking, mulch can be used as a singular erosion control device for up to six months but it shall be applied at the appropriate depth, anchored, and have a continuous 90% cover or greater of the soil surface. Refer to specification Ds1-Disturbed Area Stabilization (With Temporary Seeding).



#### CONDITIONS

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Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established. Note: Some species of temporary vegetation are not appropriate for companion crop plantings because of their potential to out-compete the desired species (e.g. annual ryegrass). Contact NRCS or the local SWCD for more information.

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#### SPECIFICATIONS Grading and Shaping

Excessive water run-off shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others.

No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

#### Seedbed Preparation

When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or hand-seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.

When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

Lime and Fertilizer Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate determined by soil test for pH. Quick acting lime should be incorporated to modify pH during the germination period. Bio stimulants should also be considered when there is less than 3% organic matter in the soil. Graded areas require lime application. Soils must be tested to determine required amounts of fertilizer and amendments. Fertilizer should be applied before land preparation and incorporated with a disk, ripper, or chisel. On slopes too steep for, or inaccessible to equipment, fertilizer shall be hydraulically applied, preferably in the first pass with seed and some hydraulic mulch, then topped with the remaining required application rate.

2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.

16

Apply polyethylene film on exposed areas.

#### Anchoring Mulch

15

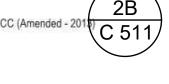
1. Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disk." Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application.

Straw or hay mulch spread with special blower-type equipment may be anchored Tackifers, binders and hydraulic mulch with tackifier specifically desgined for tacking straw can be substituted for emulsified asphalt. Please refer to specification Tac-Tackifers. Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's speci-

2. Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.

Polyethylene film shall be anchor trenched at the top as well as incrementally as necessary.

Ds2



**Dust Control on** 

**Disturbed Areas** 

Controlling surface and air movement of dust

To prevent surface and air movement of dust

injurious to human health, welfare, or safety,

This practice is applicable to areas subject to

Mulches. See standard Ds1 - Disturbed Area Stabilization (With Mulching Only). Synthetic resins may be used instead of asphalt to bind mulch material. Refer to specification Tac - Tackifiers.

Resins such as Curasol or Terratack should be

used according to manufacturer's recommenda-

Vegetative Cover. See specification Ds2 -

Spray-on Adhesives. These are used on miner-

al soils (not effective on muck soils). Keep traffic off these areas. Refer to specification Tac - Tackifiers.

Disturbed Area Stabilization (With Temporary

surface and air movement of dust where on and

off-site damage may occur without treatment.

on construction sites, roads, and demolition sites.

from exposed soil surfaces.

or to animals or plant life.

**METHOD AND MATERIALS** 

A. Temporary Methods

CONDITIONS

To reduce the presence of airborne

substances which may be harmful or

PROJECT NO: DESIGN DEVEL. 10/04/2019 PERMIT SET 100% CD's

apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect. Irrigation. This is generally done as an emergency treatment. Site is sprinkled with water until the surface is wet. Repeat as needed.

Barriers. Solid board fences, snowfences burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 15 times their height are effective in controlling wind erosion.

and bring clods to the surface. It is an emergency

measure which should be used before wind ero-

sion starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches

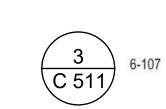
Calcium Chloride. Apply at rate that will keep surface moist. May need retreatment.

#### B. Permanent Methods

Permanent Vegetation. See specification Ds3 -Disturbed Area Stabilization (With Permanent **Vegetation**). Existing trees and large shrubs may afford valuable protection if left in place.

Topsoiling. This entails covering the surface with less erosive soil material. See specification Tp - Topsoiling.

Stone. Cover surface with crushed stone or coarse gravel. See specification Cr-Construction Road Stabilization.



SHEET TITLE

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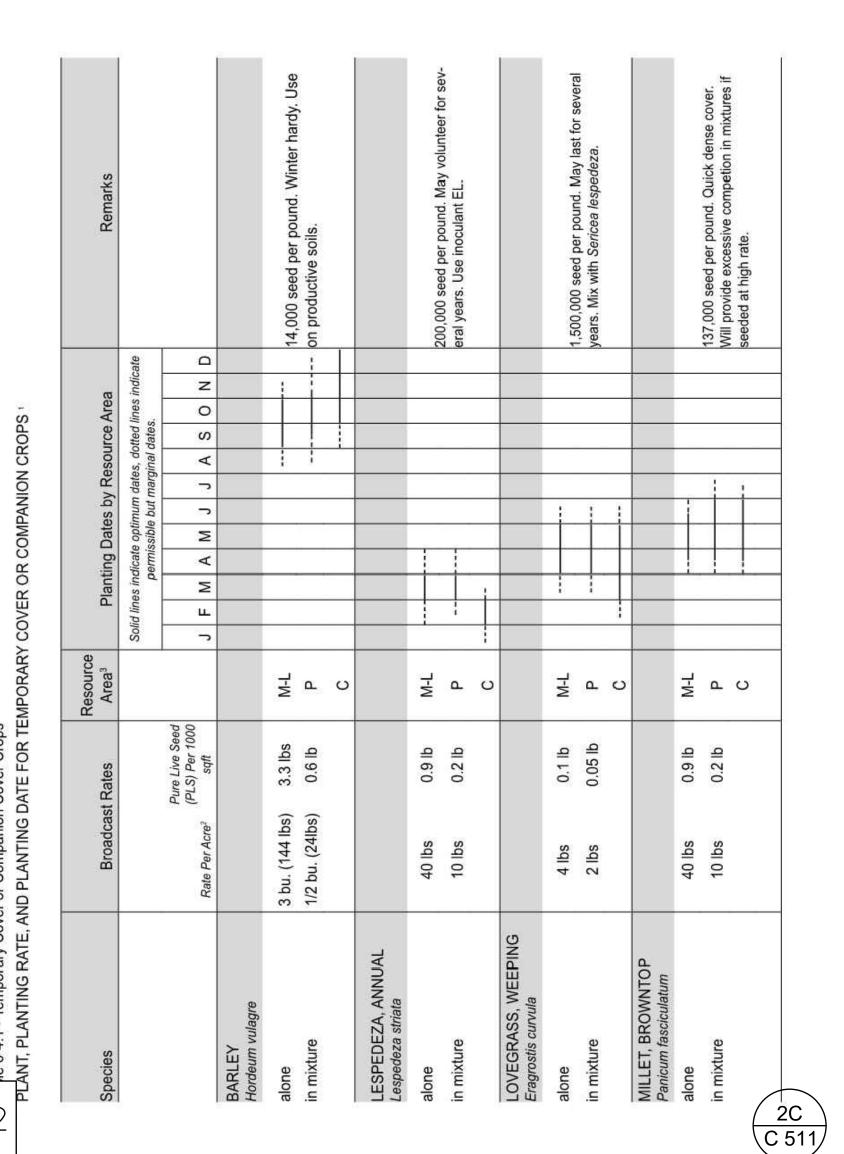
CONTRACT DOCUMENT

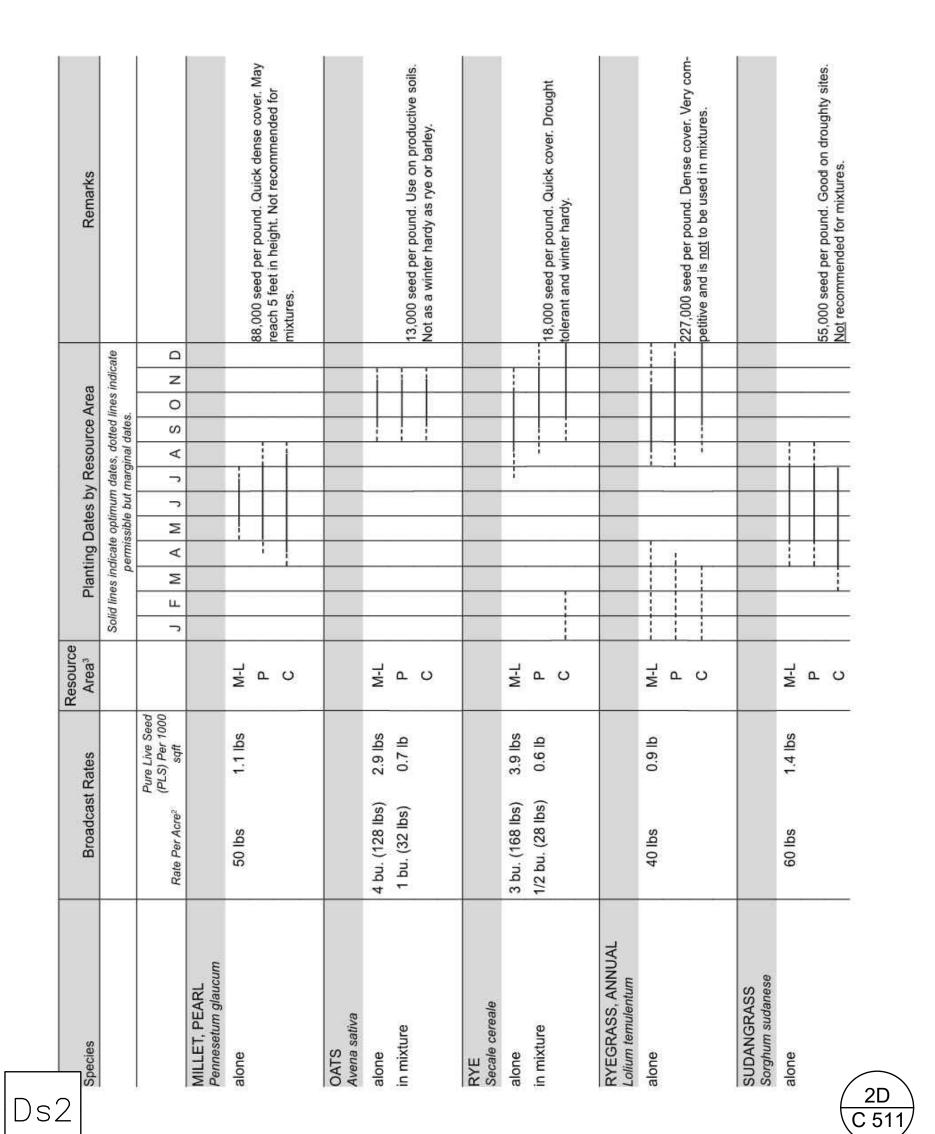
ISSUED FOR CONSTRUCTION

POLLUTION CONTROL DETAILS SHEET NUMBER

EROSION,

SEDIMENT &





ゴーロ Ds2

2E C 511

GSWCC (Amended - 2013)

Tillage. This practice is designed to roughen

PROJECT NO:

PERMIT SET 100% CD's

DESIGN DEVEL. 10/04/2019

MARIETTA, GEORGIA 30066

CONTRACT DOCUMENT

ISSUED FOR CONSTRUCTION

#### DEFINITION

The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

#### **PURPOSE**

SWCC (Amended - 2013)

To protect the soil surface from erosion

 To reduce damage from sediment and runoff to down-stream areas

 To improve wildlife habitat and visual resources

To improve aesthetics

#### REQUIREMENT FOR REGULATORY COMPLIANCE

This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than six months. This practice or sodding shall be applied immediately to all areas at final grade. Final Stabilization means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by the GA EPD for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), r equivalent permanent stabilization measures.

Permanent vegetation shall consist of, planted trees, shrubs, perennial vines; or a crop of perennial vegetation appropriate for the region, such that within the growing season a 70% coverage by perennial vegetation shall be achieved. Final stabilization applies to each phase of construction. For linear construction projects on land used for agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use. Until this standard is satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sedimentation control measures shall not be removed.

#### CONDITIONS

Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded

#### PLANNING CONSIDERATIONS

Use conventional planting methods where

When mixed plantings are done during marginal planting periods, companion crops shall be used.

No-till planting is effective when planting is done following a summer or winter annual cover crop. Sericea lespedeza planted no-till into stands of rye is an excellent procedure.

Block sod provides immediate cover. It is especially effective in controlling erosion adjacent to concrete flumes and other structures. Refer to Specification Ds4-Disturbed Area Stabilization (With Sodding).

5. Irrigation should be used when the soil is dry or when summer plantings are done.

Low maintenance plants, as well as natives, should be used to ensure long-lasting erosion control.

Mowing should not be performed during the quail nesting season (May to September).

8. Wildlife plantings should be included in critical area plantings.

#### Wildlife Plantings

Commercially available plants beneficial to wildlife species include the following:

#### Mast Bearing Trees

Beech, Black Cherry, Blackgum, Chestnut Chinkapin, Hackberry, Hickory, Honey Locust, Native Oak, Persimmon, Sawtooth Oak and

All trees that produce nuts or fruits are favored by many game species. Hickory provides nuts used mainly by squirrels and bear.

#### Shrubs and Small Trees

Bayberry, Bicolor Lespedeza, Crabapple, Dogwood, Huckleberry or Native Blueberry, Mountain Laurel, Native Holly, Red Cedar, Red Mulberry, Sumac, Wax Myrtle, Wild Plum and Blackberry.

Plant in patches without tall trees to develop stable shrub communities. All produce fruits used by many kinds of wildlife, except for lespedeza which produces seeds used by quail and songbirds.

#### Grasses, Legumes, Vines and Temporary Cover

Bahiagrass, Bermudagrass, Grass-Legume mixtures, Partridge Pea, Annual Lespedeza, Orchardgrass (for mountains), Browntop Millet (for temporary cover), and Native grapes.

Provides herbaceous cover in clearings for a game bird brood-rearing habitat. Appropriate legumes such as vetches, clovers, and lespedezas may be mixed with grass, but they may die out after a few years.

## CONSTRUCTION SPECIFICATIONS

Grading and Shaping Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.

Contentrations of water that will cause excessive



C 512

## hydroseeder

soil erosion shall be diverted to a safe outlet. Diver-

sions and other treatment practices shall conform

with the appropriate standards and specifications.

Agricultural lime is required at the rate of one

otherwise. Graded areas require lime application.

permanent perennial vegetation, additional lime

is not required. Agricultural lime shall be within

the specifications of the Georgia Department of

Lime spread by conventional equipment shall be

"ground limestone." Ground limestone is calcitic or

dolomitic limestone ground so that 90 percent of

the material will pass through a 10-mesh sieve, not

less than 50 percent will pass through a 50-mesh

sieve and not less than 25 percent will pass through

Fast-acting lime spread by hydraulic seeding

equipment should be "finely ground limestone"

spanning from the 180 micron size to the 5 micron

size. Finely ground limestone is calcitic or dolomitic

limestone ground so that 95 percent of the material

It is desirable to use dolomitic limestone in the

Agricultural lime is generally not required where

Initial fertilization, nitrogen, topdressing, and

maintenance fertilizer requirements for each spe-

cies or combination of species are listed in Table

When hydraulic seeding equipment is used,

the initial fertilizer shall be mixed with seed,

innoculant (if needed), and wood cellulose or

wood pulp fiber mulch and applied in a slurry.

The innoculant, if needed, shall be mixed with

the seed prior to being placed into the hydraulic

seeder. The slurry mixture will be agitated during

mixed. The mixture will be spread uniformly over

the area within one hour after being placed in the

GSWC (Che514022) 13

application to keep the ingredients thoroughly

Sand Hills, Southern Coastal Plain and Atlantic

Coast Flatwoods MLRAs. (See Figure 6-4.1)

will pass through a 100-mesh sieve.

Agriculture.

a 100-mesh sieve.

only trees are planted.

Lime and Fertilizer Application

6-5.1.

Lime and Fertilizer Rates and Analysis

to two tons per acre unless soil tests indicate

If lime is applied within six months of planting

Finely ground limestone can be applied in the mulch slurry or in combination with the top dressing.

When *conventional planting* is to be done, lime

 Apply before land preparation so that it will be mixed with the soil during seedbed prepara-

and fertilizer shall be applied uniformly in one of

- 2. Mix with the soil used to fill the holes, distribute in furrows.
- Broadcast after steep surfaces are scarified, pitted or trenched.
- 4. A fertilizer pellet shall be placed at root depth in the closing hole beside each pine tree seedling.

#### Plant Selection

the following ways:

Refer to Tables 6-4.1, 6-5.2, 6-5.3 and 6-5.4 for approved species. Species not listed shall be approved by the State Resource Conservationist of the Natural Resources Conservation Service before they are used.

Plants shall be selected on the basis of species characteristics, site and soil conditions, planned use and maintenance of the area; time of year of planting, method of planting; and the needs and desires of the land user.

Some perennial species are easily established and can be planted alone. Examples of these are Common Bermuda, Tall Fescue, and Weeping

Other perennials, such as Bahia Grass and Sericea Lespedeza, are slow to become established and should be planted with another perennial species. The additional species will provide quick cover and ample soil protection until the target perennial species become established. For example, Common seeding combinations are 1) Weeping Lovegrass with Sericea Lespedeza (scarified) and 2) Tall Fescue with Sericea Lespedeza (unscarified).

Plant selection may also include annual companion crops. Annual companion crops should be used only when the perennial species are not planted during their optimum planting period. A common

S SSWCC (Amended - 2013)

mixture is Brown Top Millet with Common Bermuda in mid-summer. Care should be taken in selecting companion crop species and seeding rates because annual crops will compete with perennial species for water, nutrients, and growing space. A high seeding rate of the companion crop may prevent the establishment of perennial species.

Ryegrass shall not be used in any seeding mixtures containing perennial species due to its ability to out-compete desired species chosen for permanent perennial cover.

#### Seed Quality

The term "pure live seed" is used to express the quality of seed and is not shown on the label. Pure live seed, PLS, is expressed as a percentage of the seeds that are pure and will germinate. Information on percent germination and purity can be found on seed tags. PLS is determined by multiplying the percent of pure seed with the percent of germination; i.e.,

### (PLS = % germination x % purity)

### **EXAMPLE**

Common Bermuda seed 70% germination, 80% purity

PLS = 70% germination x 80% purity

PLS = 56%

The percent of PLS helps you determine the amount of seed you need. If the seeding rate is 10 pounds PLS and the bulk seed is 56 % PLS, the bulk seeding rate is:

#### 10 lbs. PLS/acre = 17.9 lbs/acre 56% PLS

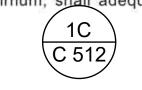
You would need to plant 17.9 lbs/acre to provide 10 lbs/acre of pure live seed.

#### Seedbed Preparation

Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used (but is strongly recommended for any seeding process, when possible). When conventional seeding is to be used, seedbed preparation will be done as follows:

#### Broadcast plantings

Tillage, at a minimum, shall adequately



plants; and allow for the anchoring of straw or hay mulch if a disk is to be used. 2. Tillage may be done with any suitable equipment.

be pitted or trenched across the slope with

appropriate hand tools to provide two places

loosen the soil to a depth of 4 to 6 inches

alleviate compaction; incorporate lime and

fertilizer; smooth and firm the soil; allow for

the proper placement of seed, sprigs, or

Tillage should be done on the contour where 4. On slopes too steep for the safe operation of tillage equipment, the soil surface shall

#### 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used.

- 1. Where individual plants are to be set, the soil shall be prepared by excavating holes opening furrows, or dibble planting.
- 2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
- Where pine seedlings are to be planted. subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

#### Innoculants

Individual Plants

All legume seed shall be inoculated with appropriate nitrogen-fixing bacteria. The innoculant shall be a pure culture prepared specifically for the seed species and used within the dates on the container.

A mixing medium recommended by the manufacturer shall be used to bond the innoculant to the seed. For conventional seeding, use twice the amount of innoculant recommended by the manufacturer. For hydraulic seeding, four times the amount of innoculant recommended by the manufacturer shall be used.

All inoculated seed shall be protected from the sun and high temperatures and shall be planted

appropriate planters or hand tools. Pine trees

at or slightly above the ground surface.

uted and planted at the proper depth.

Hydraulic Seeding

the mixture is made.

No-Till Seeding

Individual Plants

Conventional Seeding

shall be planted manually in the subsoil furrow. Each plant shall be set in a manner that will avoid crowding the roots. Nursery stock plants shall be planted at the

Cover the seed lightly with 1/8 to 1/4 inch of soil

when using a cultipacker or other suitable equip-

No-till seeding is permissible into annual cov-

er crops when planting is done following maturity

of the cover crop or if the temporary cover stand

the permanent (perennial) species. No-till seed-

ing shall be done with appropriate no-till seeding

equipment. The seed must be uniformly distrib-

Shrubs, vines and sprigs may be planted with

is sparse enough to allow adequate growth of

for small seed and 1/2 to 1 inch for large seed

Where individual holes are dug, fertilizer shall be placed in the bottom of the hole, two inches of soil shall be added and the plant shall be set in the hole.

same depth or slightly deeper than they grew at

the nursery. The tips of vines and sprigs must be

#### Mulching

Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% to 100% soil cover. When selecting a mulch, design professionals should consider the mulch's functional longevity, vegeta

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tion establishment enhancement, and erosion control effectiveness. Select the mulching material from the following and apply as indicated:

- Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
- 2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Dry straw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.
- wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper. 4. Sericea Lespedeza hay containing mature

seed shall be applied at a rate of three tons

One thousand pounds of wood cellulose or

- per acre. 5. Pine straw or pine bark shall be applied at a thickness of 3 inches for bedding purposes Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not ap-
- When using temporary erosion control blankets or block sod, mulch is not required.

propriate for seeded areas.

7. Bituminous treated roving may be applied on planted areas, slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

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Applying Mulch Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or plant-

ing. The mulch may be spread by blower-type spreading equipment, other spreading equipment or by hand. Mulch shall be applied to cover 75% of the soil surface.

Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment.

#### Anchoring Mulch

Anchor straw or hay mulch immediately after application by one of the following methods:

- 1. Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. A special "packer disk" or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be
- Synthetic tackifiers, binders or hydraulic mulch specifically designed to tack straw, shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications. All tackifiers, binders or hydraulic mulch specifically designed to tack straw should be verified nontoxic through EPA 2021.0 testing.

plowed into the soil.

Refer to Tackifiers-Tac

- Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They shall be applied at a rate of one-quarter to one-half bushel per acre.
- 4. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

#### **Bedding Material**

Mulch is used as a bedding material to conserve moisture and control weeds in nurseries, ornamental beds, around shrubs, and on bare areas on lawns.

Grain straw Grass Hay Pine needles Wood waste

Irrigation will be applied at a rate that will not cause runoff...

Depth

4" to 6"

4" to 6"

3" to 5"

4" to 6"

Topdressing will be applied on all temporary and permanent (perennial) species planted alone or in mixtures with other species. Recommended rates of application are listed in Table 6-5.1.

Second Year and Maintenance Fertilization Second year fertilizer rates and maintenance fertilizer rates are listed in Table 6-5.1.

## Lime Maintenance Application

6 years or as indicated by soil tests. Soil tests can be conducted to determine more accurate requirements, if desired. Use and Management

Mow Sericea Lespedeza only after frost to

ensure that the seeds are mature. Mow between

Apply one ton of agricultural lime every 4 to

November and March. Bermudagrass, Bahiagrass and Tall Fescue may be mowed as desired. Maintain at least 6 inches of top growth under any use and management. Moderate use of top growth is beneficial after es-

Exclude traffic until the plants are well established. Because of the quail nesting season, mowing should not take place between May and

#### Table 6-5.1. Fertilizer Requirements

TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE	
1. Cool season	First	6-12-12	1500 lbs./ac.	50-100 lbs./ac. 1/2/	
grasses	Second	6-12-12	1000 lbs./ac.	30-100 lbs./ac. 1/2/	
grasses	Maintenance	10-10-10	400 lbs./ac.	30	
2. Cool season	First	6-12-12	1500 lbs./ac.	0-50 lbs./ac. 1/	
grasses and	Second	0-10-10	1000 lbs./ac.	- Company	
legumes	Maintenance	0-10-10	400 lbs./ac.		
3. Ground covers	First	10-10-10	1300 lbs./ac. 3/	_	
	Second	10-10-10	1300 lbs./ac. 3/		
	Maintenance	10-10-10	1100 lbs./ac.	-	
4. Pine seedlings	First	20-10-5	one 21-gram pellet per seedling placed in the closing hole	_	
5. Shrub Lespedeza	First	0-10-10	700 lbs./ac.		
	Maintenance	0-10-10	700 lbs./ac. 4/	(A)	
6. Temporary cover crops seeded alone	First	10-10-10	500 lbs./ac.	30 lbs./ac. 5/	
7. Warm season	First	6-12-12	1500 lbs./ac.	50-100 lbs./ac. 2/6/	
grasses	Second	6-12-12	800 lbs./ac.	50-100 lbs./ac. 2/	
SFA	Maintenance	10-10-10	400 lbs./ac.	30 lbs./ac.	
8. Warm season	First	6-12-12	1500 lbs./ac.	50 lbs./ac./6/	
grasses and	Second	0-10-10	1000 lbs./ac.		
legumes	Maintenance	0-10-10	400 lbs./ac.		

1/ Apply in spring following seeding. 2/ Apply in split applications when high rates are used.

3/ Apply in 3 split applications. 4/ Apply when plants are pruned.

5/ Apply to grass species only. 6/ Apply when plants grow to a height of 2 to 4 inches.

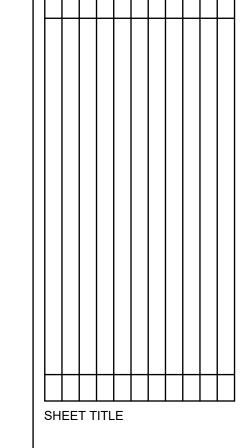
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DS3 C 2016 Edition

P 0

P 0

SHEET NUMBER



EROSION, SEDIMENT & POLLUTION CONTROL DETAILS

Ds3

# Ш S

PROJECT NO: 19097.00 DESIGN DEVEL. 10/04/2019 PERMIT SET 100% CD's



MARIETTA, GEORGIA 30066 CONTRACT DOCUMENT ISSUED FOR CONSTRUCTION

SHEET TITLE EROSION,

SEDIMENT &

POLLUTION

SHEET NUMBER

Irrigate sod and soil to a depth of 4" immediately Immediate erosion control, green surface, Table 6-6.2 Sod Planting Requirements after installation. and quick use.

2. Reduced failure as compared to seed as well Sod should not be cut or spread in extremely wet or dry weather. Irrigation should be used to supplement rainfall for a minimum of 2-3 weeks.

MATERIALS Sod selected should be certified. Sod grown

- in the general area of the project is desirable. Sod should be machine cut and contain 3/4" (+ or -1/4") of soil, not including shoots or thatch.
- Sod should be cut to the desired size within + or -5%. Torn or uneven pads should be
- 3. Sod should be cut and installed within 36 hours of digging.
- Avoid planting when subject to frost heave or hot weather, if irrigation is not available.

5. The sod type should be shown on the plans or installed according to Table 6-6.2. See Figure 6-4.1 for your Resource Area.

MAINTENANCE Re-sod areas where an adequate stand of sod is not obtained. New sod should be mowed sparingly. Grass height should not be cut less than 2"-3" or as specified (See Figure 6-6.2).

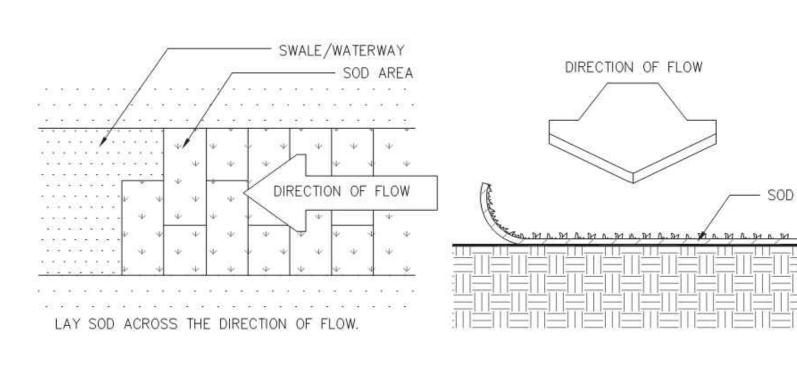
Apply one ton of agricultural lime as indicated by soil test or every 4-6 years. Fertilize grasses in accordance with soil tests or Table 6-6.3.

Varieties	Resource Area	Growing Season	
Common Tifway Tifgreen Tiflawn	M-L,P,C P,C P,C P,C	warm weather	
Pensacola	P,C	warm weather	
-	P,C	warm weather	
Common Bitterblue Raleigh	С	warm weather	
Emerald Myer	P,C	warm weather	
Kentucky	M-L,P	cool weather	
	Tifway Tifgreen Tiflawn  Pensacola  Common Bitterblue Raleigh  Emerald Myer	Common Tifway Tifgreen Tiflawn P,C  Pensacola P,C  Pensacola P,C  Common Bitterblue Raleigh  Emerald Myer  P,C  P,C  P,C  P,C  P,C	

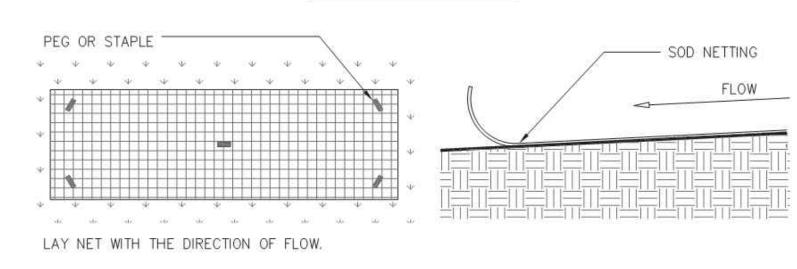
Table 6-6.3 Fertilizer Requirements for Sod						
Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./acre)	Nitrogen Top Dressing Rate (lbs./acre)		
cool	first	6-12-12	1500	50-100		
season	second	6-12-12	1000	-		
grasses	maintenance	10-10-10	400	30		
warm	first	6-12-12	1500	50-100		
season	second	6-12-12	800	50-100		
grasses	maintenance	10-10-10	400	30		

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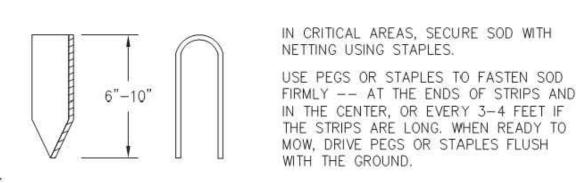
## SODDED WATERWAYS SOD DIRECTIONS



#### NETTING DIRECTIONS



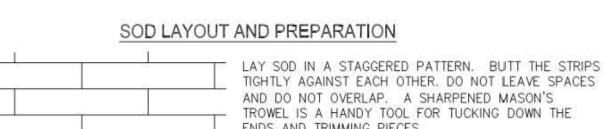
#### PEG DETAIL

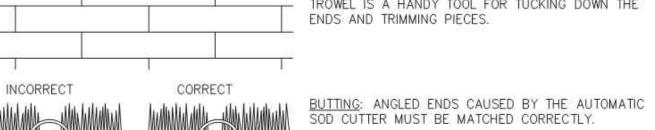


Source: Va. DSWC

Figure 6-6.1	
	$ \begin{array}{c}                                     $
	Figure 6-6.1

## SOD MAINTENANCE AND INSTALLATION





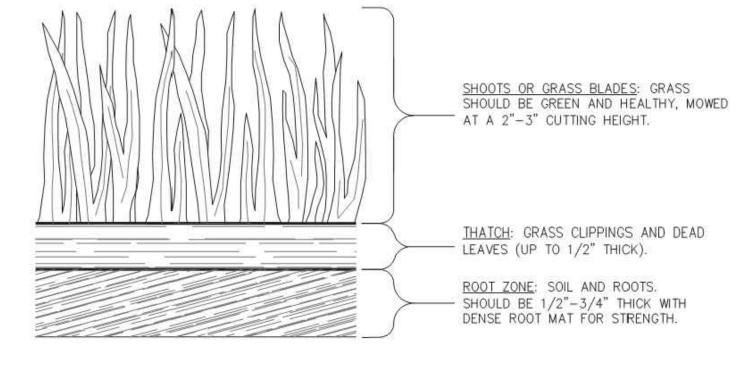
#### DIRECTIONS FOR INITIAL MAINTENANCE

ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL

WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD

Step 3. MOW WHEN THE (2"-3"). MOW WHEN THE SOD IS ESTABLISHED -- IN 2-3 WEEKS. SET THE MOWER

#### APPEARANCE OF GOOD SOD



Source: Va. DSWC

Figure 6-6.2

## DS4 swcc (Amended - 2013) HYDROSEEDED GRASS TO PROVIDE 90% DENSITY RESPREAD STOCKPILED di tapi bir tapi pir tapi bir tapi bir tapi bir tapi pir tapi bir tapi pir tapi pir tapi pir tapi bir tapi bir TOPSOIL TO 4 INCHES SUBGRADE

#### **Flocculants** Coagulants

PREPARE SOIL FOR

**HYDROSEEDING** 

DISTURBED AREA

**STABILIZATION** 

DEFINITION

PURPOSE

(WITH SODDING)

A permanent vegetative cover using sods on

highly erodible or critically eroded lands.

Establish immediate ground cover.

Improve aesthetics and land value.

· Stabilize waterways, critical areas.

Filter sediments, nutrients and bugs.

Reduce downstream complaints.

Reduce likelihood of legal action.

Increase "good neighbor" benefits.

PLANNING CONSIDERATIONS

to legal action.

CONDITIONS

initial costs:

Reduce likelihood of work stoppage due

This application is appropriate for areas which

require immediate vegetative covers, drop inlets,

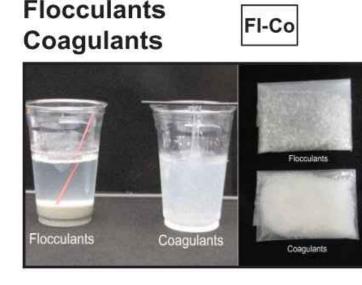
grass swales, and waterways with intermittent

Sodding can initially be more costly than

seeding, but the advantages justify the increased

Reduce runoff and erosion.

Reduce dust and sediments



#### DEFINITION

Flocculants and Coagulants (Fl-Co) are formulated to assist in the solids/liquid separation of suspended particles in solution. Such particles are characteristically very small and the suspended stability of such particles (colloidal complex) is due to both their small size and to the electrical charge between particles. Conditioning a solution to promote the removal of suspended particles requires chemical coagulation and/or

A coagulant is required to help give body to the water. Coagulants neutralize the repulsive electrical charges (typically negative) surrounding particles allowing them to "stick together" creating clumps or flocs that form a small to mid-size particles (sometimes called a pin-floc). Once the pin-floc has formed, a second chemical called a flocculent is required to make even larger particles. Flocculants facilitate the agglomeration or aggregation of the coagulated particles to form larger floccules and acts as a net where it gathers up the smaller coagulated particles making a larger particle. This larger particle will slowly drop to the bottom of the container (vessel), forming a sludge.

Coagulation and Flocculation occur in successive order. Firstly the forces stabilizing suspended particles are neutralized allowing particles to meet (coagulate) and secondly, to form larger, heavier flocs (flocculants).

o settle suspended sediment, heavy metals d hydrocarbons (TSS) in runoff water from 1 — C O VCC (Amended - 2013)

construction sites for water clarification.

as the lack of weeds.

3. Can be established nearly year-round.

Sodding is preferable to seed in waterways and

swales because of the immediate protection of the

channel after application. Sodding must be staked in concentrated flow areas (See Figure 6-6.1).

Consider using sod framed around drop inlets

Bring soil surface to final grade. Clear surface

Topsoil properly applied will help guarantee a

Mix fertilizer into soil surface. Fertilize based

Table 6-6.1. Fertilizer Requirements for

Soil Surface Application

(lbs/acre) (lbs/sq ft)

Agricultural lime should be applied based

on soil tests or at a rate of 1 to 2 tons per acre.

Lay sod with tight joints and in straight lines.

On slopes steeper than 3:1, sod should be

anchored with pins or other approved methods.

Installed sod should be rolled or tamped to provide

Don't overlap joints. Stagger joints and do not

stretch sod (See Figure 6-6.2)

good contact between sod and soil.

Rate

.025

Season

Fall

6-103

C 513

Fertilizer Fertilizer

Rate

1000

stand. Don't use topsoil recently treated with her-

of trash, woody debris, stones and clods larger

than 1". Apply sod to soil surfaces only and not

to reduce sediments and maintaining the grade.

CONSTRUCTION SPECIFICATIONS

frozen surfaces, or gravel type soils.

Soil Preparation

bicides or soil sterilants.

Fertilizer

10-10-10

Installation

on soil tests or Table 6-6.1.

CONDITIONS

C 513

Water clarification and the removal of turbidity will usually require the addition of flocculants, polymers, polyacrylamides (PAM), chitosan and other chemicals that cause soil particles to bind together, become heavy and settle to the bottom of a sediment trap, sediment basin or become entrapped in other BMPs.

This practice is not intended for application to surface waters of the state. It is intended for application within construction storm water ditches and storm drainages which feed into pre-constructed ponds or basins or other BMPs.

Federal and Local Laws FI-Co applications shall comply with all federal, local laws, rules or regulations governing Fl-Co. The operator is responsible for securing applicable required permits, if needed. This standard does not contain the text of the federal or local laws governing Flocculants/Coagulants.

Planning Considerations Since settling of flocculated soil particles requires very slow moving (still) water, chemical additives should never be introduced into an outfall BMP where water leaves the property or enters state waters. In all cases where chemical additives are used to reduce turbidity, it is essential to include a sediment basin or sediment trap unless using a "pump and treat" treatment

Application rates shall conform to manufacturer's guidelines for application. Only anionic forms of FI-Co shall be used.

Following are examples of FI-Co applications within construction storm water ditches or drainageways which feed into sediment basins or other BMPs:

•FI-Co Bags or Socs that are installed directly in a ditch, pipe or culvert.

•FI-Co treated ditch checks (i.e. fiber rolls, wattles, or compost logs inoculated or used in conjunction with FI-Co ).

·Granulated FI-Co treated rock ditch checks. C 513

Ditch checks with attached FI-Co Bags or

Addition of granular FI-Co directly into a

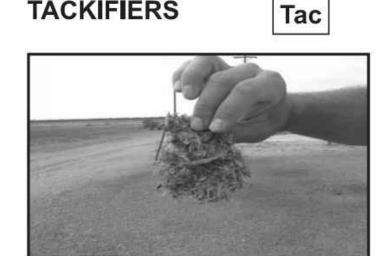
 Erosion control blankets and turf reinforcement mats that have been inoculated with a

"Pump and Treat" systems that use mechanical mixing with a chemical treatment of a

#### Operation and Maintenance

Application rates shall conform to manufacturer's guidelines for application. Maintenance shall consist of reapplying FI-Co via one of means above when turbidity levels are no longer met or the FI-Co is used up. Bricks, blocks, socks,logs and bags shall be maintained when sediment sediment accumulates on the products.

## **TACKIFIERS**



Tackifiers are used as a tie-down for soil, compost, seed, straw, hay or mulch. Tackifiers hydrate in water and readily blend with other slurry materials to form a homogenous slurry.

## PURPOSE

To reduce soil erosion from wind and water on construction sites. Other benefits include soil infiltration, soil fertility, enhanced seed germination, increased soil cohesion, enhanced soil stabilization, reduced stormwater runoff turbidity and reduction in loss of topsoil.

#### CONDITIONS

This practice is intended for direct soil surface application to sites where the timely establishment of vegetation may not be feasible or where vegetation cover is absent or inadequate. Such areas include construction areas, where plant residues are inadequate to protect the soil surface and where land disturbing activities prevent the establishment or maintenance of a vegetative

### CRITERIA

Type | Tackifiers: Synthetic Polymers Tac-1

·Application rates shall conform to manufacturer's guidelines for application.

 Only anionic forms of PAM shall be used. Anionic PAMs shall be no more than 0.05% acrylamide monomer by weight, as

established by the Food and Drug Administration and the Environmental Protect-

Not harmful to plants, animals and aquatic

 Contain no growth or germination inhibiting materials.

Shall not reduce infiltration rates.

Type II Tackifiers: Organic Polymers Such as guar gum, polysaccharides, and starches

 Application rates shall conform to manufacturer's guidelines for application.

Derived from natural plant sources.

Not harmful to plants, animals and aquatic

 Contain no growth or germination inhibiting materials.

Shall not reduce infiltration rates.

Type III Tackifiers: Synthetic/Organic Blends

 Application rates shall conform to manufacturer's guidelines for application.

 Only anionic forms of PAM shall be used in the blend, and shall be no more than 0.05% acrylamide monomer by weight.

 Organic material must be derived from natural plant sources.

Not harmful to plants, animals and aquatic

Contain no growth or germination inhibiting

Shall not reduce infiltration rates.

C 513

Type IV Tackifiers: Organic Tackifiers with Synthetic Fibers

 Application rates shall conform to manufacturer's guidelines for application.

 Organic material must be derived from natural plant sources.

Not harmful to plants, animals and aquatic

Contain no growth or germination inhibiting

Tac-4

 Shall not reduce infiltration rates. Synthetic fibers shall be of nylon or polyester

Type V Tackifiers:

urer's guidelines for application.

Synthetic/Organic Blends with Synthetic Fibers Application rates shall conform to manufact-

> Only anionic forms of PAM shall be used in the blend, and shall be no more than 0.05% acrylamide monomer by weight.

Organic material must be derived from natural

 Not harmful to plants, animals and aquatic Contain no growth or germination inhibiting

·Shall not reduce infiltration rate.

Synthetic fibers shall be of nylon or polyester

#### MAINTENANCE

Tackified areas should be checked after every rain event. Periodic inspections and required maintenance must be provided per manufacturer's recommendations.

C 513

## PURPOSE

CONTROL DETAILS

C 513

10

(CC (Amended - 2013)

13

GSWCC (Amended - 2013)

Slope Stabilization



#### DEFINITION

A protective covering used to prevent erosion and establish temporary or permanent vegetation on steep slopes, shore lines, or channels.

#### **PURPOSE**

To provide a cover layer that stabilizes the soil and acts as a rain drop impact dissipater while providing a microclimate which protects young vegetation and promotes its establishment. If using slope stabilization to reinforce channels, please refer to specification, Ch- Channel Stablization.

Slope stabilization can be applied to flat areas or slopes where the erosion hazard is high and slope protection is needed during the establishment of vegetation.

#### PERFORMANCE EVALUATION

For a product or practice to be approved as slope stabilization, that product or practice must have a documented C- factor of 0.080, as specified by GSWCC. For complete test procedures and approved products list please visit www.gaswcc.georgia.gov.

#### PLANNING CONSIDERATIONS

Care must be taken to choose the type of slope stabilization product which is most appropriate for the specific needs of a project. Two general types of slope stabilization products are discussed within this specification.

#### Rolled Erosion Control Products (RECP) A natural fiber blanket with single or double

SS

6" LAYERS

SOIL AND RIPRAP

GEOTEXTILE FABRIC BETWEEN --

photodegradable or biodegradable nets.

Hydraulic Erosion Control Products (HECP) HECP shall utilize straw, cotton, wood or other natural based fibers held together by a soil binding agent which works to stabilize soil particles. Paper mulch should not be used for erosion control.

Rolled Erosion Control Products (RECPs) and Hydraulic Erosion Control Products (HECPs):

•Installation and stapling of RECPs and application rates for the HECPs shall conform to manufacturer's guidelines for application

 Products shall have a maximum C-factor (ASTM D6459) for the following slope grade:

Slope (H:V) C-Factor (max.) 3:1 or greater

#### Materials - HECP

Hydraulic erosion control products shall be prepackaged from the manufacturer. Field mixing of performance enhancing additives will not be allowed. Fiberous components should be all natural or biodegradable.

Products shall be determined to be non-toxic in accordance with EPA-821-R-02-012.

#### Materials - RECP

Blankets shall be nontoxic to vegetation seed, or wildlife. Products shall be determined to be non-toxic in accordance with EPA-821-R-02-012. At minimum, the plastic or biodegradable netting shall be stitched to the fibrous matrix to maximize strength and provide for ease of handling.

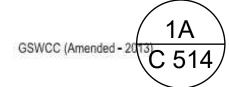
#### RECPs are categorized as follows:

## a. Short-Term

(functional longevity 12 mo.)

#### i. Photodegradable

Straw blankets with a top and bottom side photo degradable net. The maximum size of the mesh shall be openings of 1/2" X 1/2". The blanket



should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.35" and minimum density should be 0.5 lbs per square yard.

#### ii. Biodegradable

Straw blanket with a top and bottom side biodegradable jute net. The top side net shall consist of machine direction strands that are twisted together and then interwoven with cross direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh shall be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.5 lbs per square yard.

#### b. Extended-Term

(functional longevity 24 mo.)

#### i.Photodegradable

Blankets that consist of 70% straw and 30% coconut with a top and bottom side photodegradable net. The top net should have ultraviolet additives to delay breakdown. The maximum size of the mesh shall be openings of 0.65" X 0.65". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.35" and minimum density should be 0.6 lbs per square yard.

#### ii.Biodegradable

Blankets that consist of 70% straw and 30% coconut with a top and bottom side biodegradable jute net. The top side net shall consist of machine direction strands that are twisted together and then interwoven with cross direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh shall be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.65 lbs per square yard.

#### c. Long-Term (functional longevity 36 mo.)

#### i. Photodegradable

Blankets that consist of 100% coconut with a top and bottom side photodegradable net. Each Ild have ultraviolet additives to delay

breakdown. The maximum size of the mesh shall be openings of 0.65" X 0.65". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.3" and minimum density should be 0.5 lbs per square yard.

#### iii. Biodegradable

Blankets that consist of 100% coconut with a top and bottom side biodegradable jute net. The top side net shall consist of machine direction strands that are twisted together and then interwoven with cross direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh shall be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.5 lbs per square yard.

It is the intention of this section to allow interchangeable use of RECPs and HECPs for erosion protection on slopes. The project engineer should select the type of erosion control product that best fits the need of the particular site.

#### Site Preparation

After the site has been shaped and graded to the approved design, prepare a friable seedbed relatively free from clods and rocks more than one inch in diameter, and any foreign material that will prevent contact of the soil stabilization mat with the soil surface. Surface must be smooth to ensure proper contact of blankets or matting to the soil surface. If necessary, redirect any runoff from the ditch or slope during installa-

#### MAINTENANCE

All erosion control blankets and matting should be inspected periodically following installation, particularly after rainstorms to check for erosion and undermining. Any dislocation or failure should be repaired immediately. If washouts or breakage occurs, reinstall the material after repairing damage to the slope or ditch. Continue to monitor these areas until they become permanently stabilized.



## TEMPORARY SEDIMENT TRAP

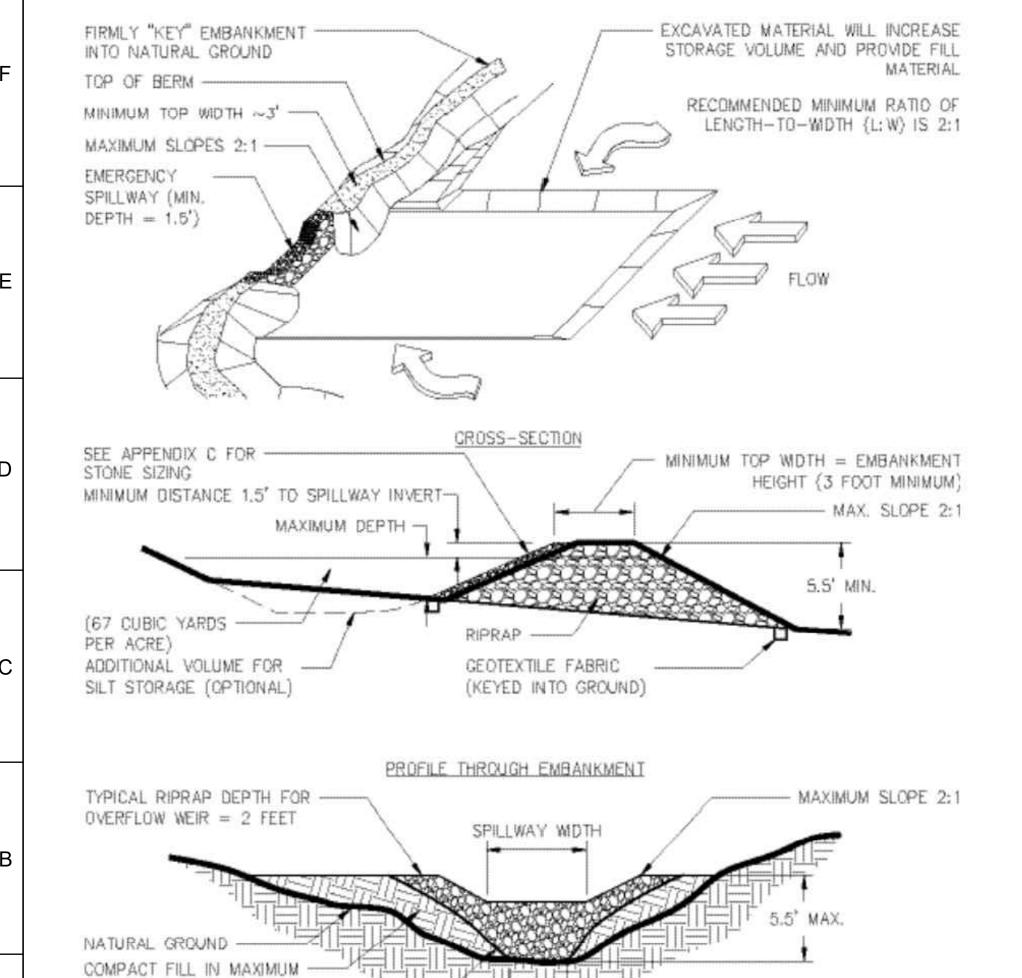


Figure 6-30.3

TYPICAL WIDTH = 3 FEET

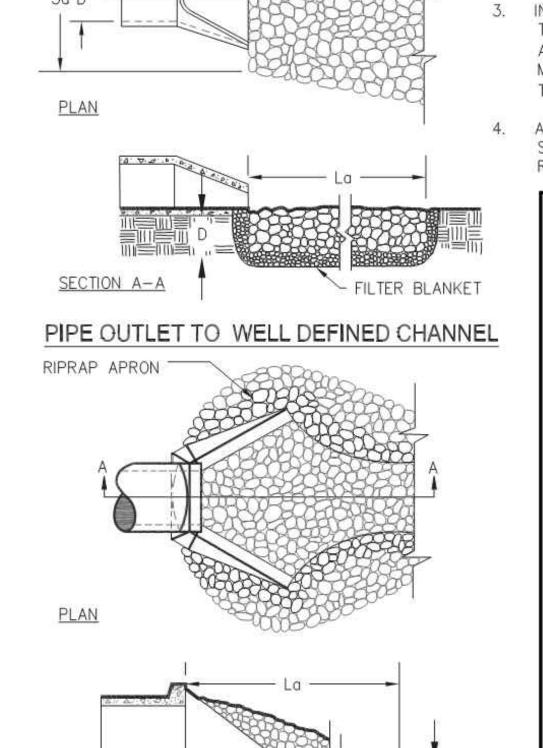
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C 514 | GSWCC 2016 Edition

**ROCK OUTLET** 

## RIPRAP OUTLET PROTECTION

#### PIPE OUTLET TO FLAT AREA -- NO WELL DEFINED CHANNEL



- La IS THE LENGTH OF THE RIPRAP
- 2. D = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS HAN 6".
- IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS)
- A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND THE SOIL FOUNDATION.

#### St-1 Calculations: structure C1

24" Diameter; TW > 0.5 Do 21.20CFS (100 yr storm); 7.66 FPS (100 yr storm)

La = 12 feet (Length of Apron) D avg = 6 inches (avg stone size) D max = 1.5\* D avg = 9 inches D = 1.5 \* D max = 13.5 inches D = 13.5 inches (depth) W1 = 6.0 feet (width at pipe) W2 = (2.0 feet + .4\*(12 ft) = 6.8 ftW2 = 7 feet (width at downstream)

#### St-2 Calculations: structure B1

18" Diameter: TW > 0.5 Do 10.86 CFS (100 yr storm); 6.85 FPS (100 yr storm)

La = 10 feet (Length of Apron)

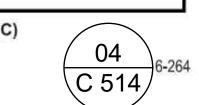
D avg = 6 inches (avg stone size)

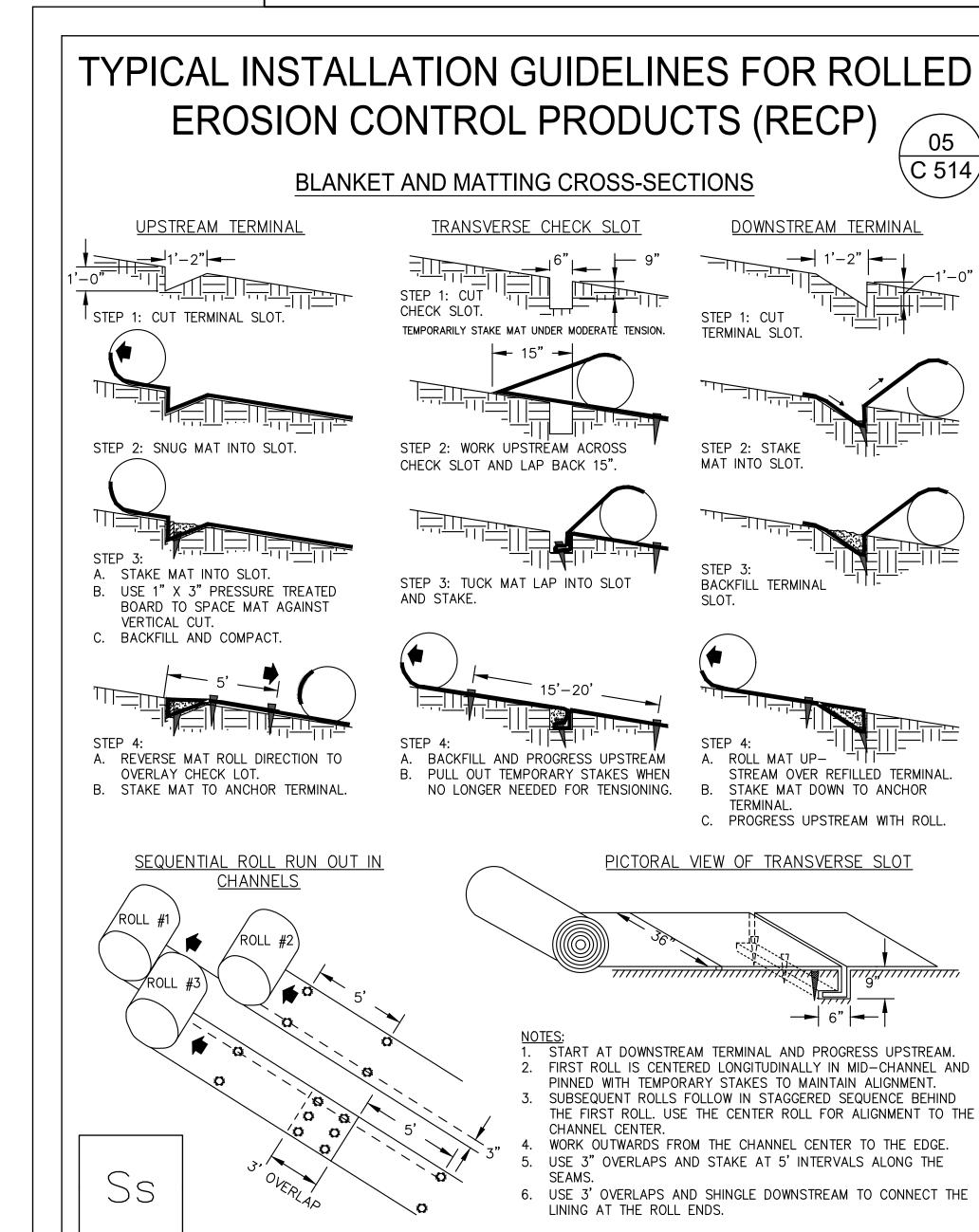
D max =  $1.5^*$  D avg = 9 inches D = 1.5 \* D max = 13.5 inches D = 13.5 inches (depth) W1 = 4.5 feet (width at pipe) W2 = (1.5 feet + .4\*(10 ft) = 5.5 ftW2 = 5.5 feet (width at downstream)

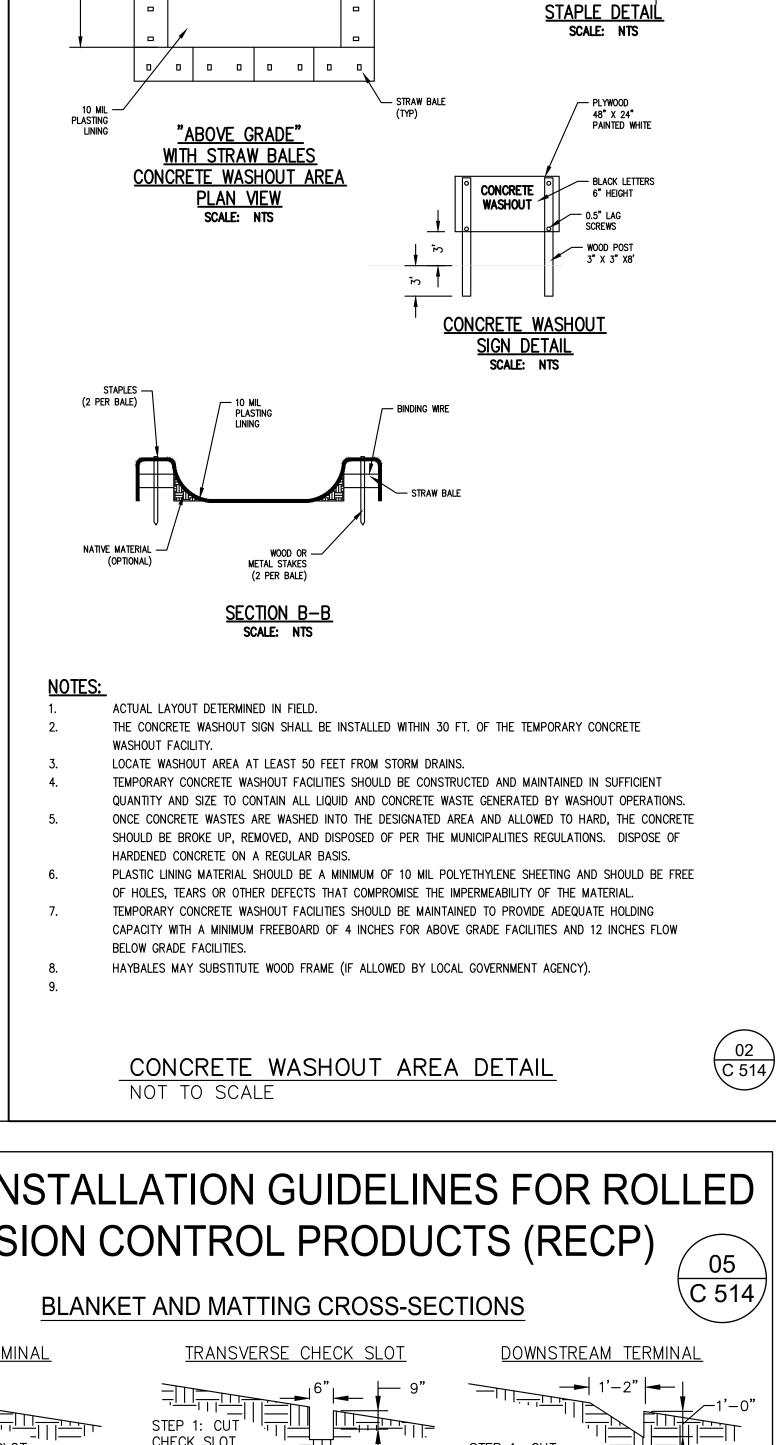
Figure 6-34-3 - Riprap Outlet Protection (Modified From Va SWCC)

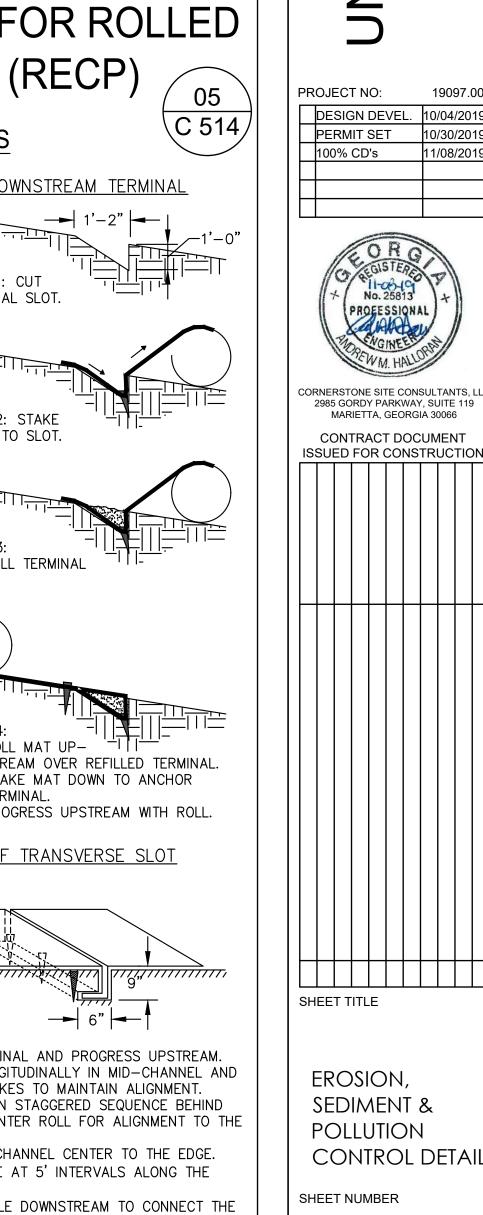
GSWCC (Amended - 2013)

SECTION A-A

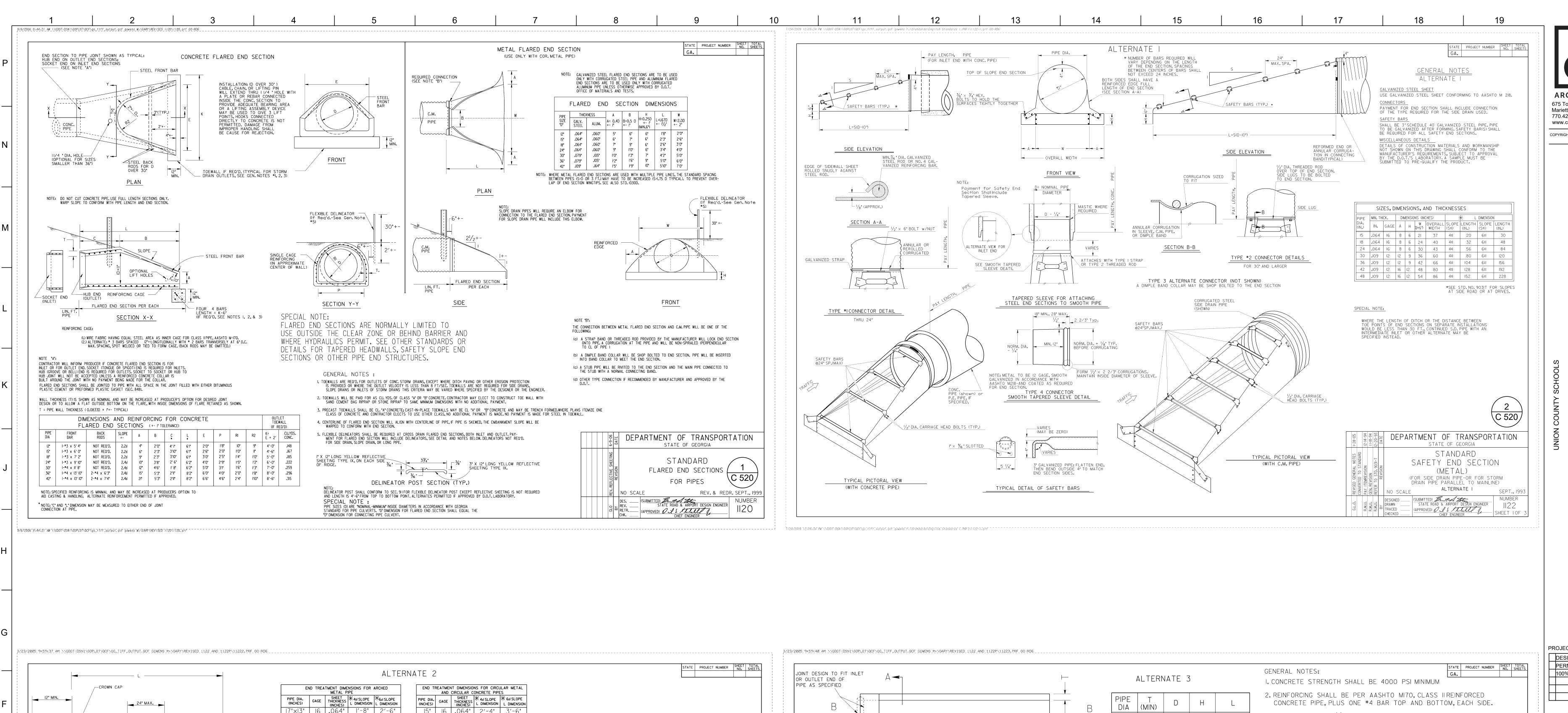


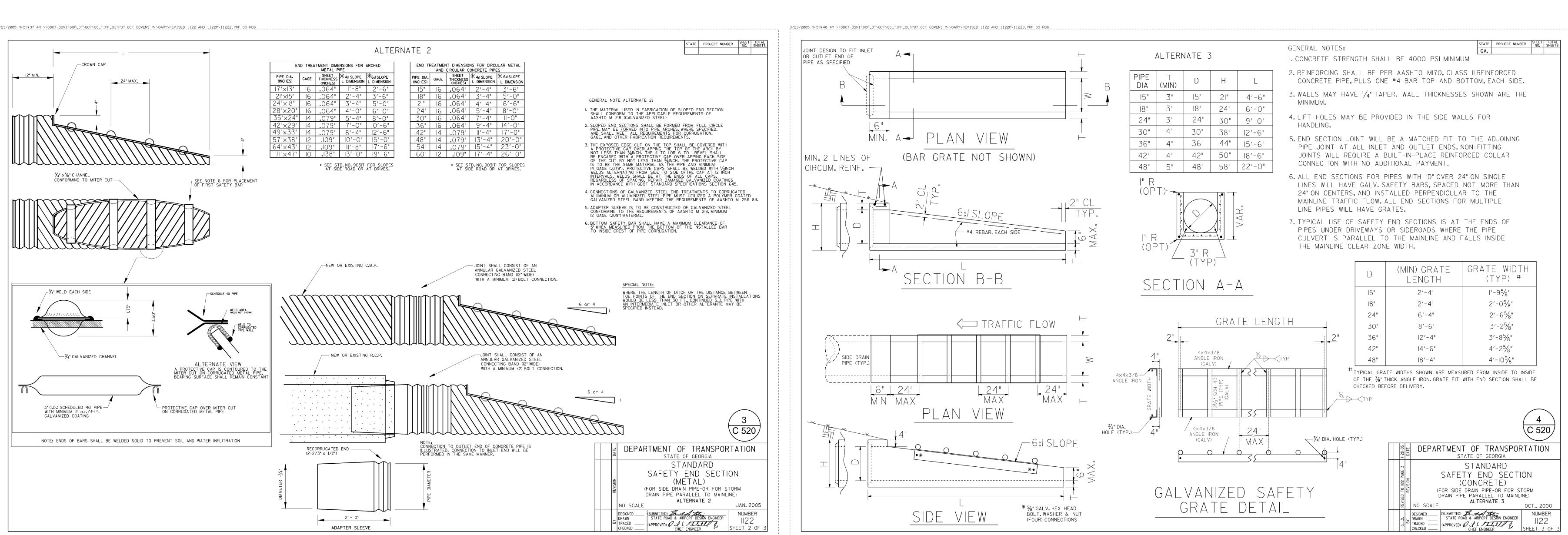






EROSION, SEDIMENT & POLLUTION CONTROL DETAILS SHEET NUMBER





3/23/2005 9:59:37 AM \\GDDT-DSN1\GDPTOT\QCE\GD TIFF OUTPUT QCF GOWENS M;\GARY\REVISED 1122 AND 1122P\11222 PRE



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HIGH SCHOOL - FIELD HOUSE

HIGH SCHOOLS

HIGH SCHOOLS

PROJECT NO: 19097.00

DESIGN DEVEL. 10/04/2019

PERMIT SET 10/30/2019

100% CD's 11/08/2019

No. 25813

PROFESSIONAL

CORNERSTONE SITE CONSULTANTS, LLC
2985 GORDY PARKWAY, SUITE 119

MARIETTA, GEORGIA 30066

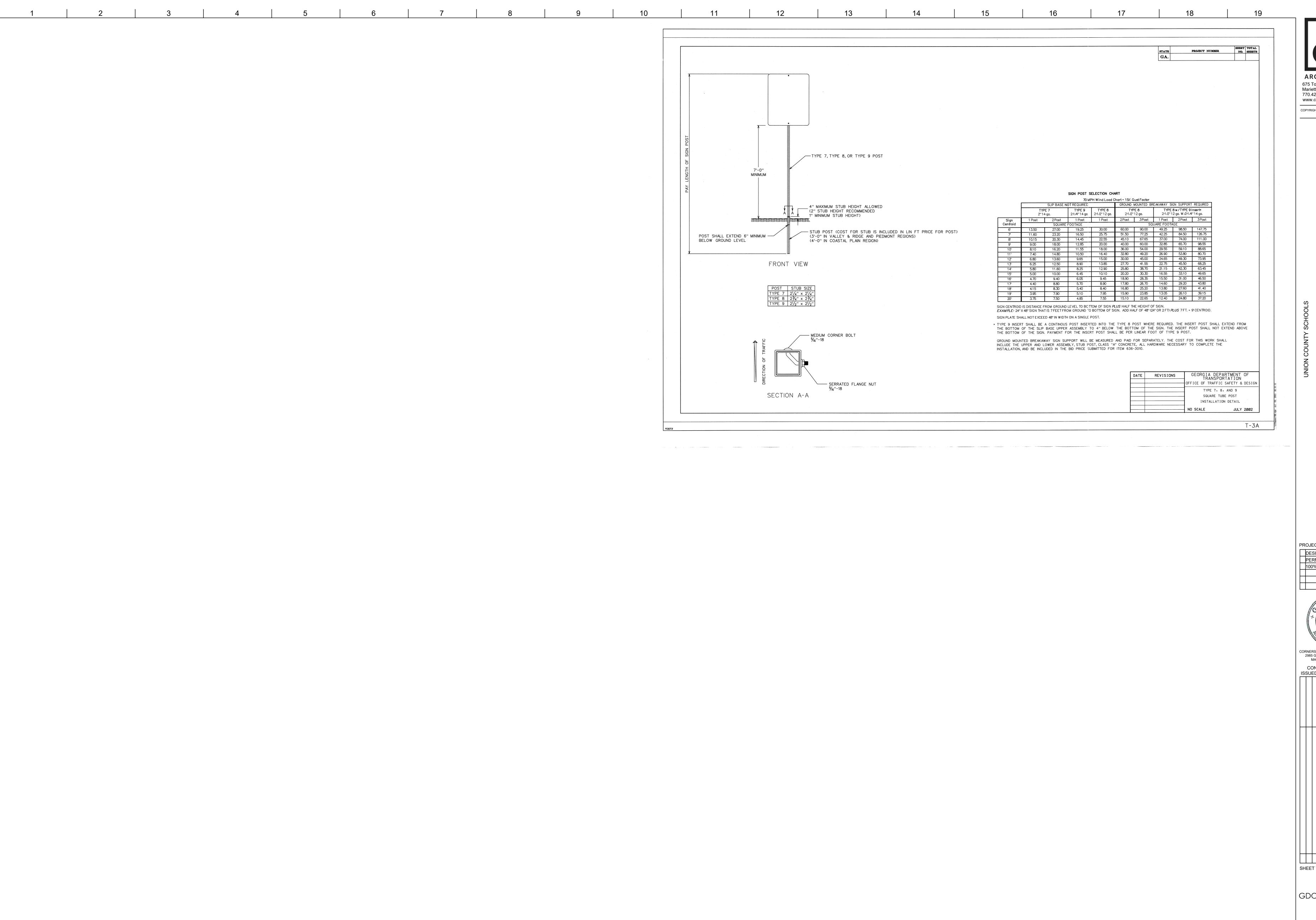
CONTRACT DOCUMENT
ISSUED FOR CONSTRUCTION

SHEET TITLE

GDOT DETAILS

SHEET NUMBER

C520





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SOUNTY HIGH SCHOOL - FIEL

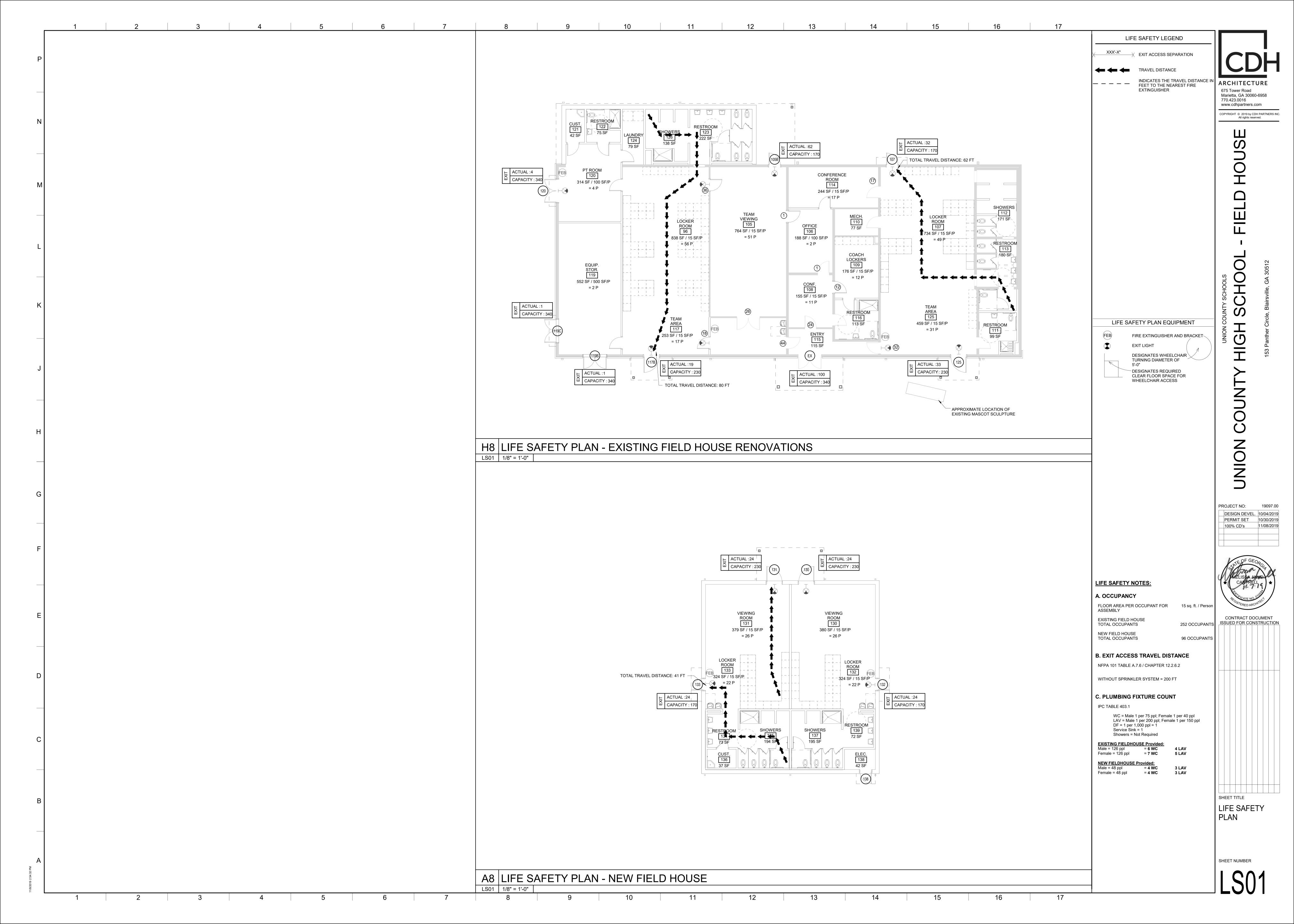
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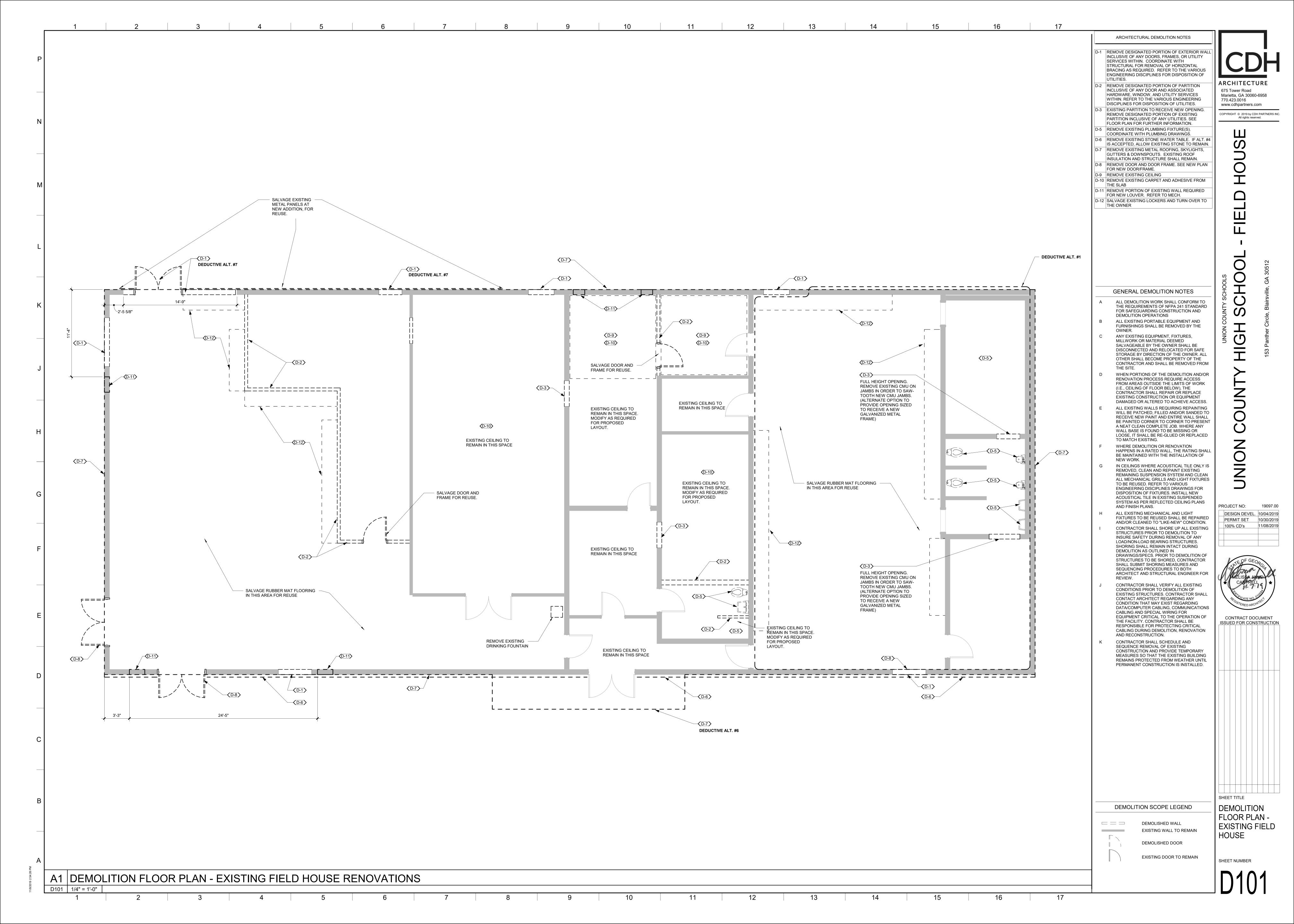
DESIGN DEVEL. 10/04/2019
PERMIT SET 10/30/2019
100% CD's 11/08/2019

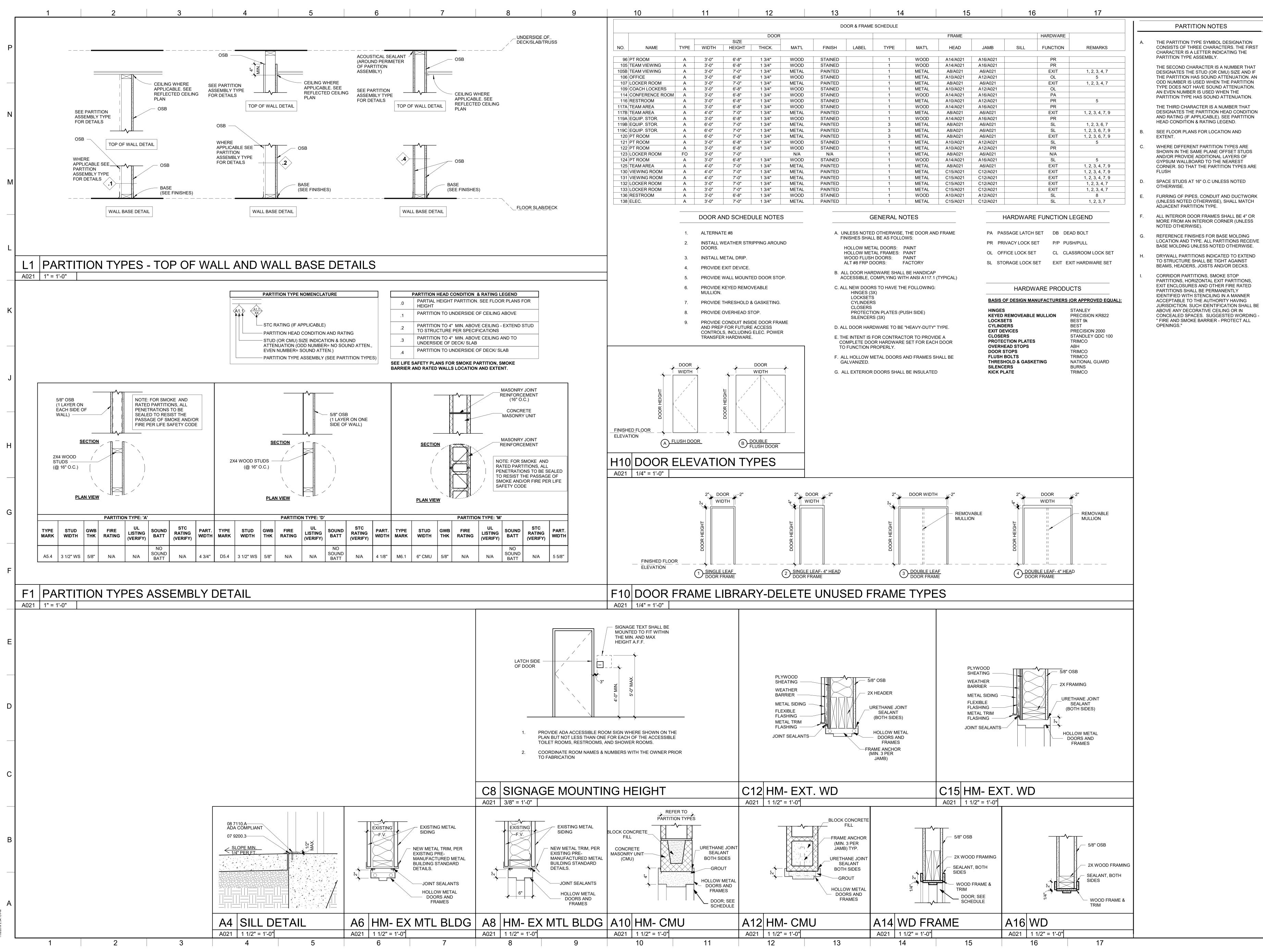


SHEET TITLE

GDOT DETAILS







ARCHITECTURE

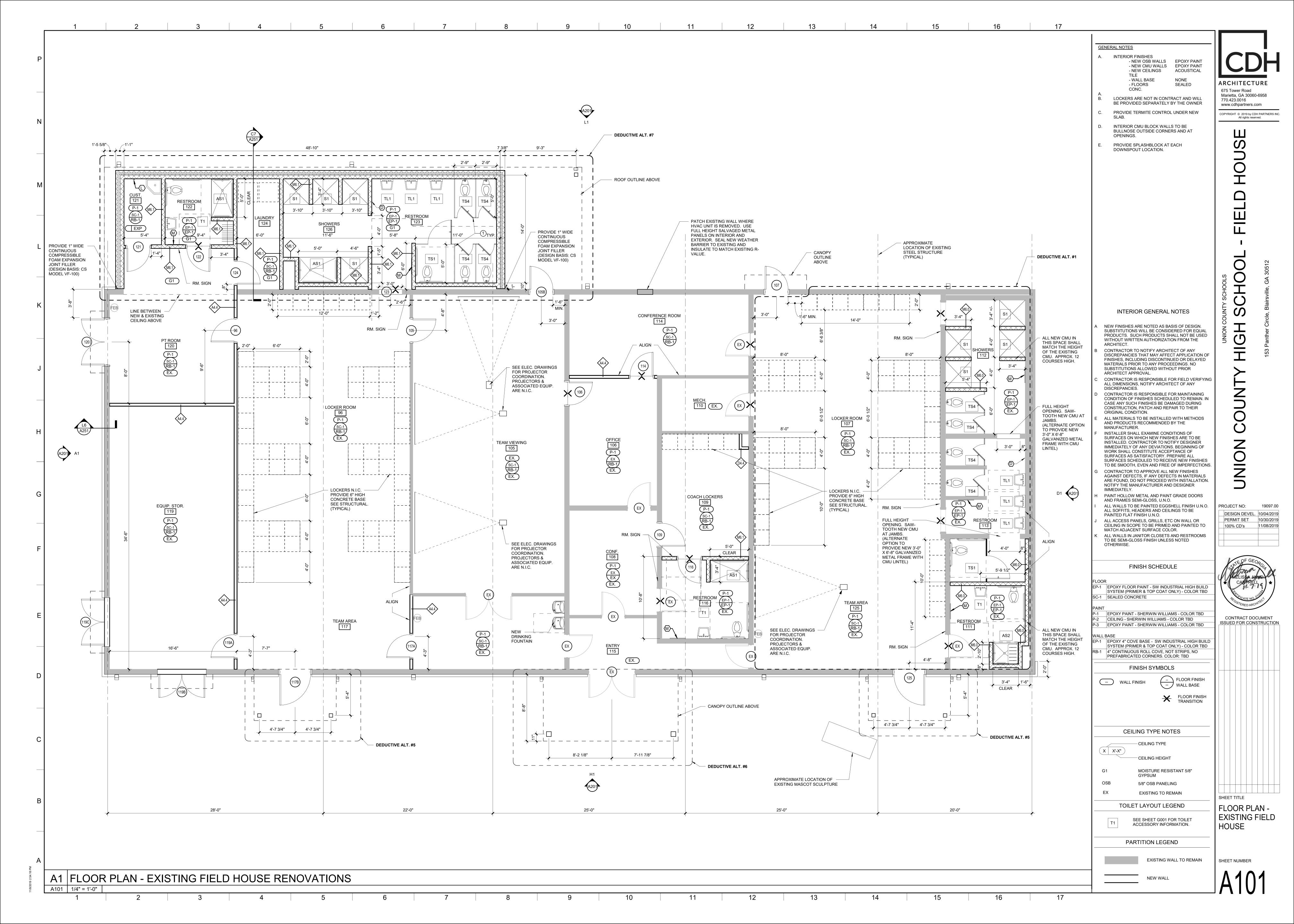
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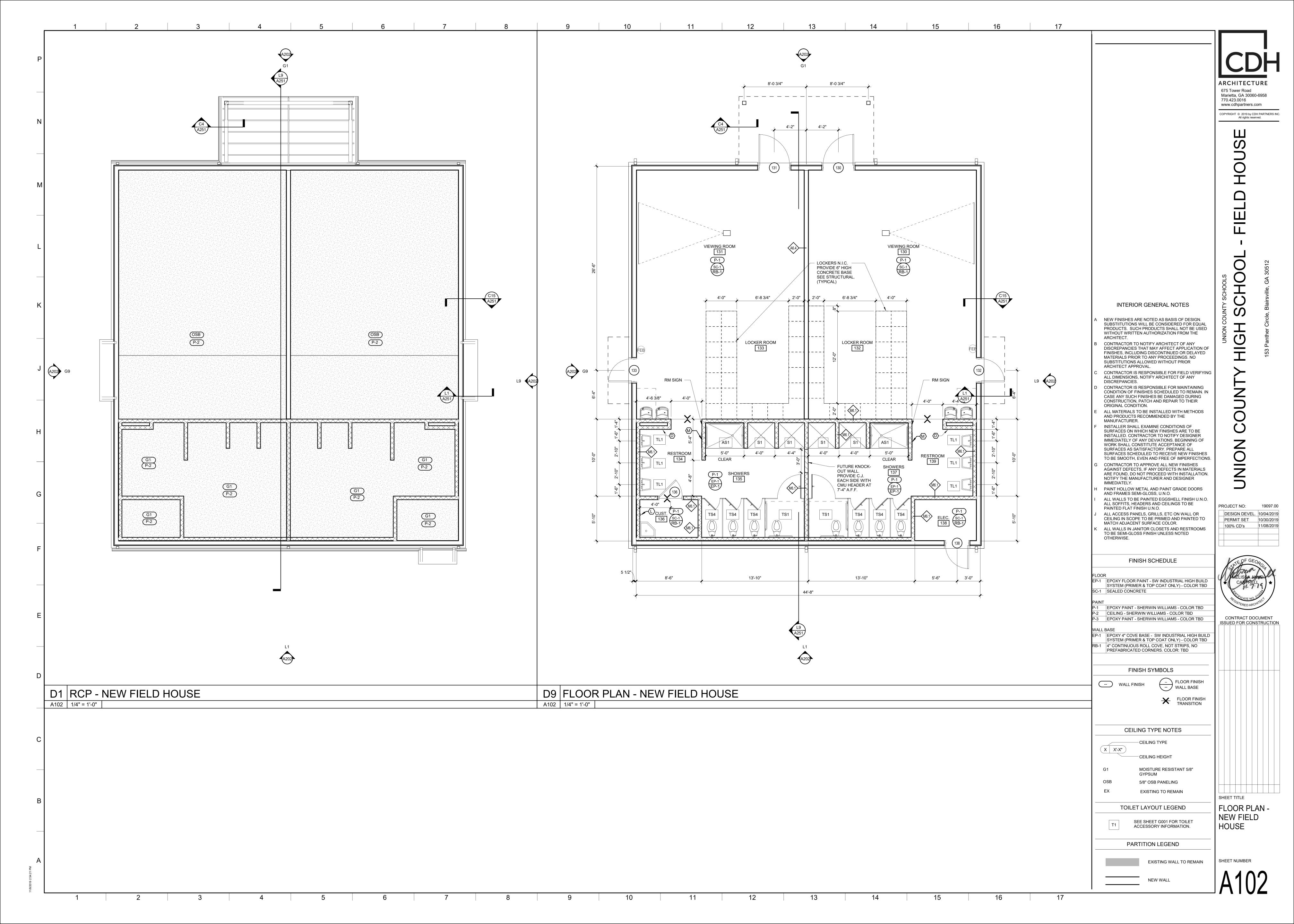
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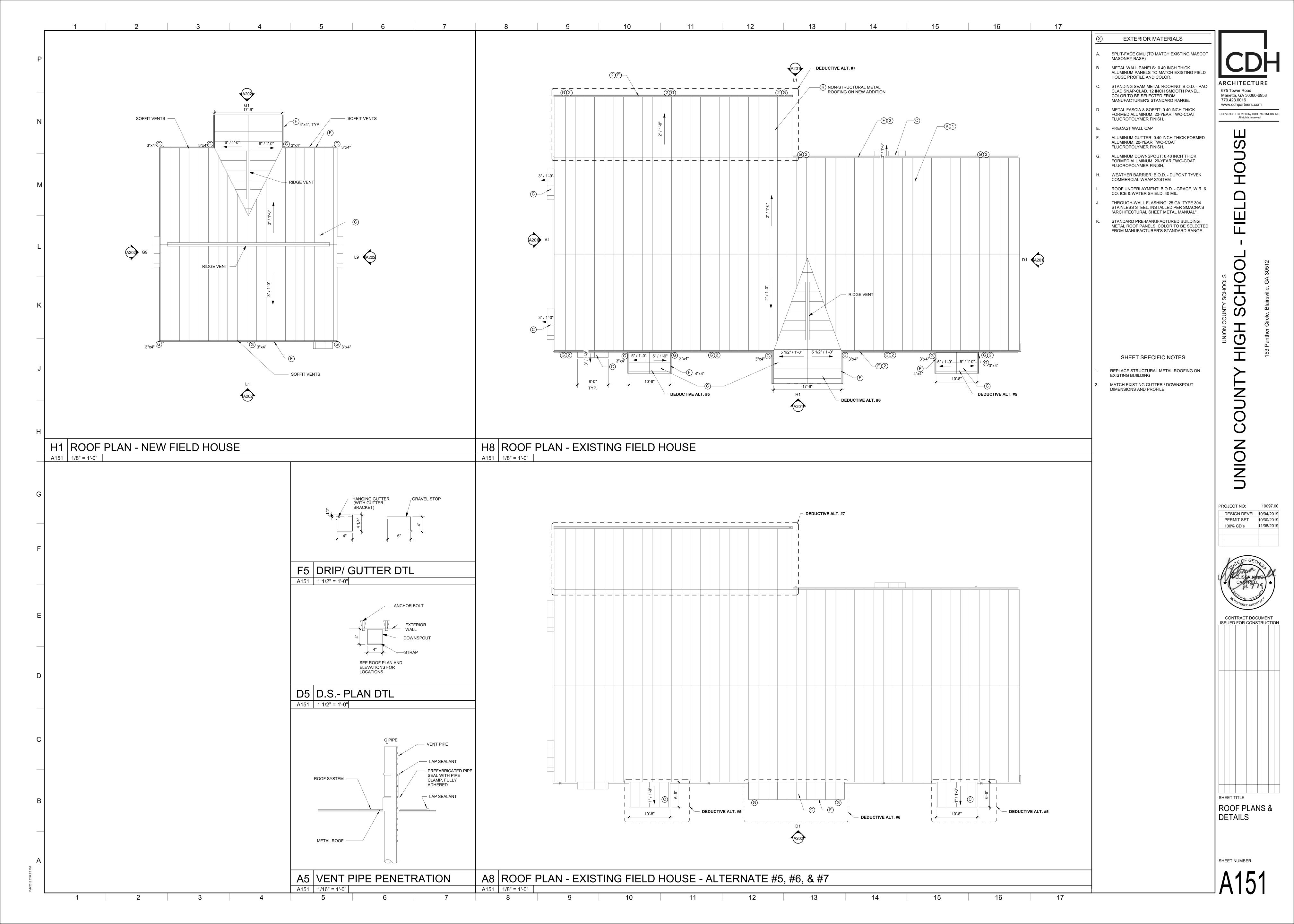
PROJECT NO: DESIGN DEVEL. 10/04/2019 100% CD's

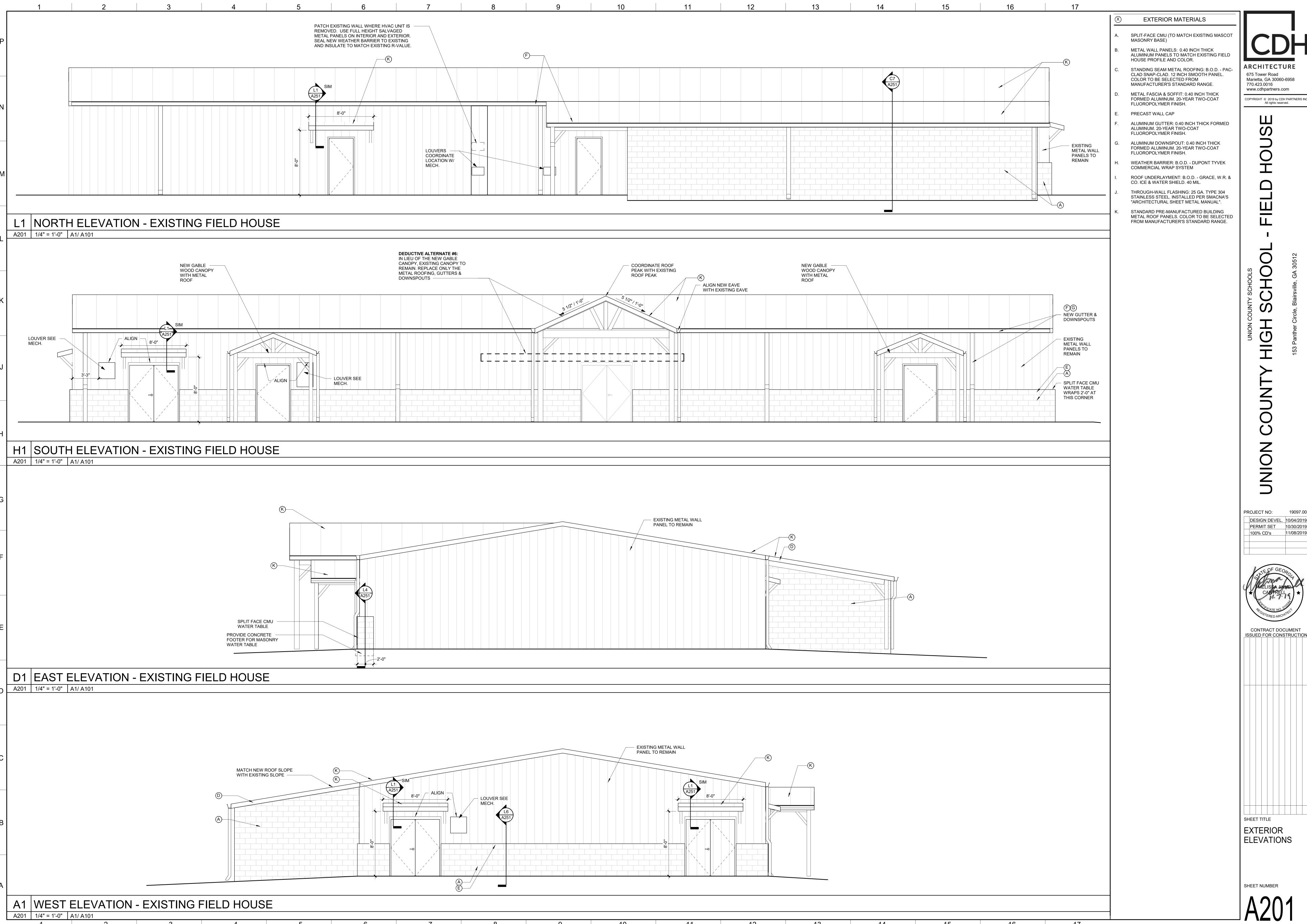
ISSUED FOR CONSTRUCTION

SHEET TITLE DOOR AND PARTITION SCHEDULES







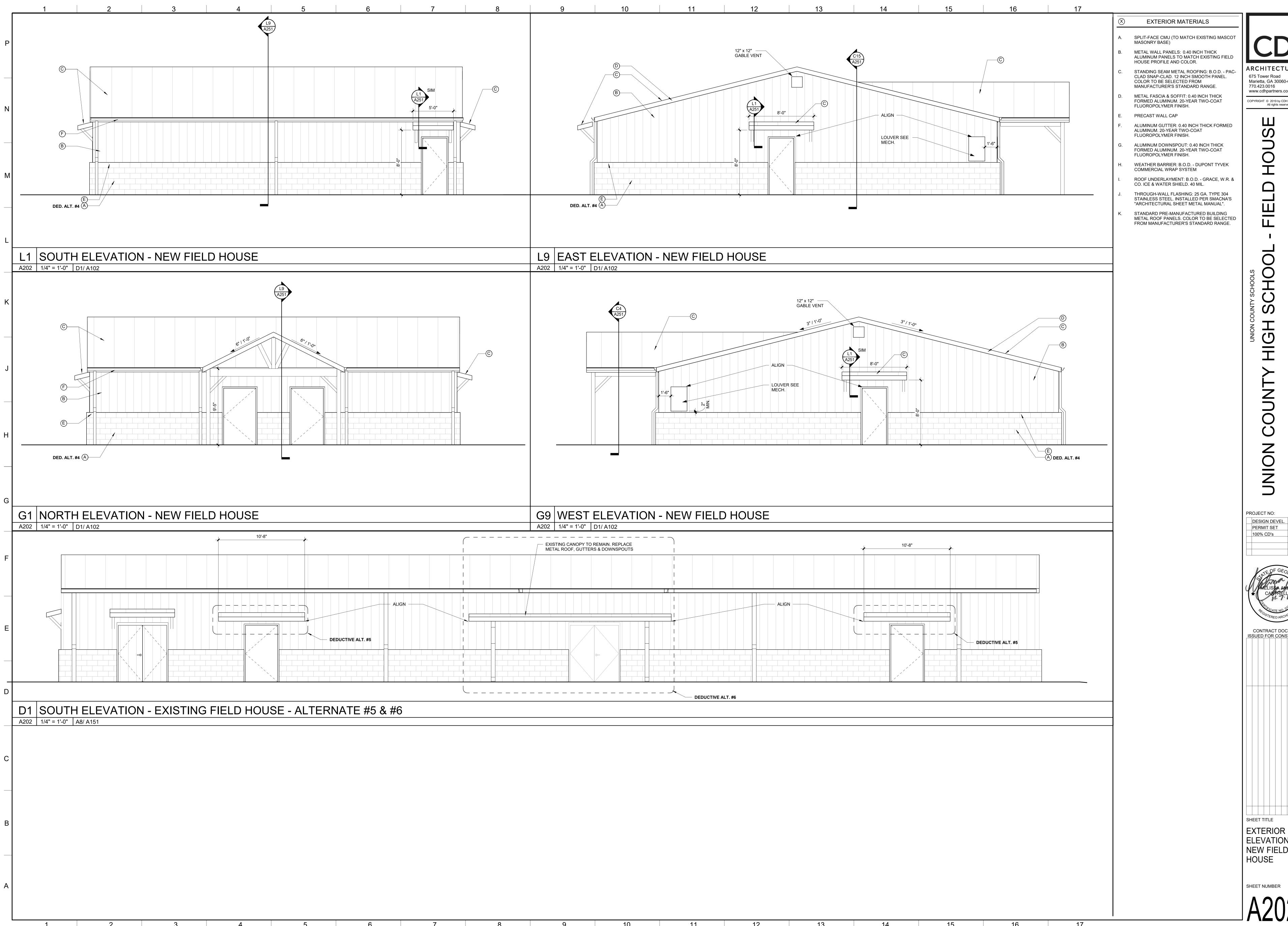


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ELEVATIONS



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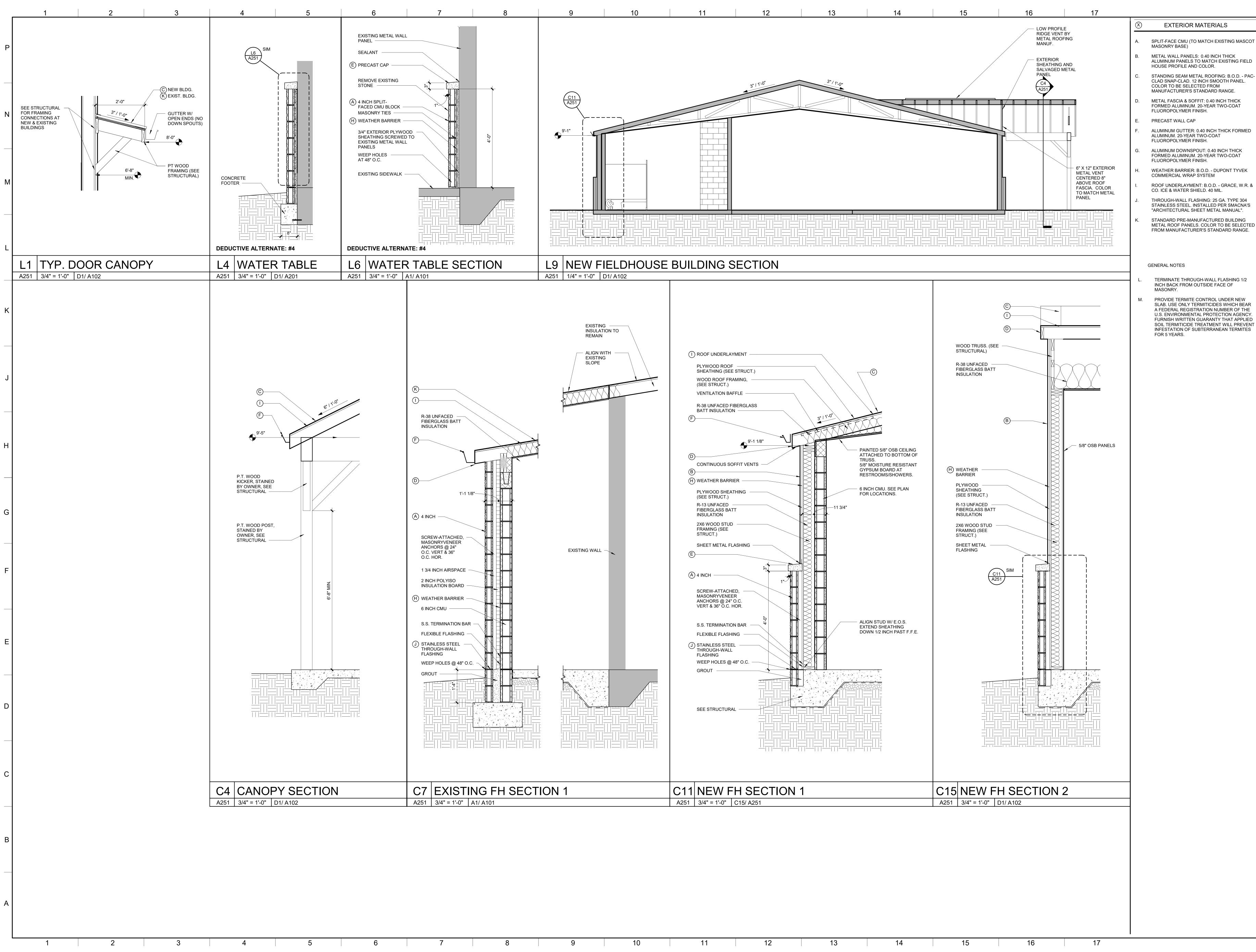
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SHEET TITLE

ELEVATIONS -NEW FIELD



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ALUMINUM GUTTER: 0.40 INCH THICK FORMED

ALUMINUM DOWNSPOUT: 0.40 INCH THICK FORMED ALUMINUM. 20-YEAR TWO-COAT

WEATHER BARRIER: B.O.D. - DUPONT TYVEK

"ARCHITECTURAL SHEET METAL MANUAL". STANDARD PRE-MANUFACTURED BUILDING

TERMINATE THROUGH-WALL FLASHING 1/2 INCH BACK FROM OUTSIDE FACE OF

PROVIDE TERMITE CONTROL UNDER NEW

SLAB. USE ONLY TERMITICIDES WHICH BEAR A FEDERAL REGISTRATION NUMBER OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY. FURNISH WRITTEN GUARANTY THAT APPLIED SOIL TERMITICIDE TREATMENT WILL PREVENT INFESTATION OF SUBTERRANEAN TERMITES

> PROJECT NO: DESIGN DEVEL. 10/04/2019



ISSUED FOR CONSTRUCTION

SHEET TITLE

BUILDING & WALL SECTIONS

OTHERWISE ON THE PLANS. VERTICAL CONTROL JOINTS SHALL BE LOCATED FROM A CORNER 1/2 THE DISTANCE OF THE

12. CONDUIT AND PIPES ARE ALLOWED IN UNGROUTED CMU CELLS. THE DIAMETER SHALL FIT WITHIN THE UNIT CELL WITH

ADJACENT WALL'S CONTROL JOINT DISTANCE FROM THE CORNER.

1/4" CLEAR FROM INSIDE CELL OF CMU.

1. SAWN MEMBERS THAT ARE HEADERS, JOISTS, RAFTERS, AND POSTS SHALL BE SOUTHERN PINE (SP) OF #2 GRADE OR BETTER. WALL STUDS MAY BE SOUTHERN PINE OF #3 OR STUD GRADE, OR SPRUCE-PINE-FIR (SPF) STUD GRADE. 2. ALL REFERENCES TO "NAILS" ON THE PLANS SHALL BE COMMON NAILS UNLESS NOTED OTHERWISE ON THE PLANS 3. ALL WOOD EMBEDDED OR IN CONTACT WITH CONCRETE, MASONRY, EARTH OR DIRECTLY EXPOSED TO WEATHER 4. REFER TO THE "WOOD TRUSS NOTES" FOR ADDITIONAL NOTES FOR THE WOOD TRUSS MANUFACTURER. 5. REFER TO THE "WOOD FRAMING FASTENING SCHEDULE" ON THE PLANS FOR TYPICAL FRAMING ATTACHMENTS NOT 6. REFER TO THE "WOOD SHEATHING ATTACHMENT PLAN" FOR THE REQUIRED NAILING PATTERN. 7. ALL METAL (PLATES, NAILS, BOLTS, ETC.) IN CONTACT WITH PRESSURE TREATED AND FIRE-RETARDANT WOOD SHALL HAVE G185 ZINC GALVANIZED COATING. 8. ALL FLOOR, CEILING, AND ROOF FRAMING SHALL HAVE BRIDGING OR BLOCKING EVERY 8 FEET. 9. TOP AND BOTTOM PLATES OF ALL WALLS SHALL BE THE THICKNESS OF A NOMINAL 2x AND AT LEAST EQUAL TO THE 10. A DOUBLE TOP PLATE SHALL BE PROVIDED FOR ALL LOAD BEARING STUD WALLS. THE TOP PLATE SHALL BE NAILED TOGETHER WITH 16d COMMON WIRE NAILS @ 16" ON-CENTER. TOP PLATE SPLICES SHALL HAVE (8) 16d NAILS ON EACH SIDE OF SPLICE, AND THE SPLICE SHALL BE LAPPED WITH ADJACENT WALL AT INTERSECTIONS AND CORNERS. 11. REFER TO THE TYPICAL WOOD DETAILS FOR LIMITATIONS OF CUTTING, NOTCHING, AND BORING OF STUDS AND 12. ALL WOOD CONNECTORS AND PRODUCT MODEL NUMBERS ARE BASED OFF SIMPSON STRONG-TIE. ALTERNATE CONNECTORS SHALL MEET OR EXCEED THE DESIGN VALUES SPECIFIED BY SIMPSON STRONG-TIE.

1. WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE LATEST EDITION OF THE NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION, DESIGN SPECIFICATIONS FOR METAL PLATE CONNECTED WOOD TRUSSES, THE TRUSS PLATE INSTITUTE, AND SECTION 2303.4 OF THE 2012 INTERNATIONAL BUILDING CODE. 2. WOOD TRUSSES SHALL BE DESIGNED FOR A TOP CHORD DEAD LOAD OF 10 PSF, BOTTOM CHORD DEAD LOAD OF 10 PSF, TOP CHORD LIVE LOAD PER 2012 IBC. NET UPLIFT OF 12 PSF (ASD) 3. WOOD TRUSSES SHALL BE SPACED A MAXIMUM OF 24" ON-CENTER UNLESS NOTED OTHERWISE ON THE DRAWINGS. 4. TRUSSES SHALL BE LOCATED AT END WALL CONDITIONS SO THAT THE ROOF SHEATHING HAS A MAXIMUM SPAN OF 24" 5. TRUSS LAYOUT ON THE PLAN IS GENERIC IN NATURE; THE TRUSS MANUFACTURER SHALL LOCATE TRUSSES TO MEET ALL PLAN REQUIREMENTS. 6. PRE-FABRICATED WOOD TRUSSES SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE SAME STATE AS THE PROJECT LOCATION. 7. SHOP DRAWINGS AND TRUSS CALCULATIONS MUST BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR APPROVAL 8. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING AS A MINIMUM: ENGINEER'S STAMP, DESIGN LOADS, DETAILED TRUSS LAYOUT, TRUSS/WALL CONNECTION LOADS, TRUSS BRACING REQUIREMENTS, AND FIELD ERECTION REQUIREMENTS. THE TRUSS SUBMITTAL PACKAGE SHALL MEET THE REQUIREMENTS OF SECTION 2303.4 OF THE 2012 IBC. SHEAR AND UPLIFT ANCHORAGE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS SO THAT THESE DESIGNED CONNECTIONS CAN BE VERIFIED. 9. WHERE TRUSSES SUPPORT NON-INTEGRATED PARAPET FRAMING, THE TRUSS MANUFACTURER SHALL ACCOUNT FOR ALL DEAD, LIVE, WIND, AND SEISMIC LOADS ASSOCIATED WITH THE PARAPET. THE TRUSS MANUFACTURER SHALL USE GENERAL ENGINEERING PRINCIPLE FOR DEVELOPING THESE LOADS. 10. THE WOOD TRUSS CROSS-SECTION SHOWN IN BUILDING SECTIONS ARE SCHEMATIC IN NATURE. THE ROOF TRUSS MANUFACTURER IS RESPONSIBLE FOR THE EXACT TRUSS LAYOUT THAT MEETS THE INTENT OF THE STRUCTURAL AND ARCHITECTURAL DRAWINGS & DETAILS. 11. GYPSUM BOARD ATTACHED DIRECTLY TO THE BOTTOM CHORD OF THE TRUSS SHALL BE CONSIDERED ADEQUATE FOR BRACING TRUSS BOTTOM CHORD. WHERE GYPSUM BOARD IS ATTACHED TO THE BOTTOM CHORD OF THE TRUSS BY RESILIENT CHANNELS OR HAT CHANNELS, THE BOTTOM CHORD OF THE TRUSS SHALL **NOT** BE CONSIDERED

MANUFACTURER SHALL COORDINATE CEILING TYPE AND LOCATIONS WITH THE ARCHITECTURAL DRAWINGS. 12. ALL TRUSS-TO-TRUSS CONNECTIONS SHALL BE FURNISHED BY THE TRUSS MANUFACTURER. 13. THE TOP CHORD SHALL BE CONSIDERED PERMANENTLY BRACED BY THE WOOD ROOF SHEATHING. 14. TRUSSES SHALL BE PERMANENTLY RESTRAINED AND BRACED IN A MANNER CONSISTENT WITH GOOD BUILDING PRACTICES AS OUTLINED IN BCSI AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS. TRUSSES SHALL FURTHERMORE BE ANCHORED OR RESTRAINED TO PREVENT OUT-OF-PLANE MOVEMENT SO AS TO KEEP ALL TRUSS MEMBERS FROM SIMULTANEOUSLY BUCKLING TOGETHER IN THE SAME DIRECTION. SUCH PERMANENT LATER RESTRAINT SHALL BE ACCOMPLISHED BY: (a) ANCHORAGE TO SOLID END WALLS; (b) PERMANENT DIAGONAL BRACING IN THE PLANE OF THE WEB MEMBERS; OR (c) OTHER SUITABLE MEANS. 15. TRUSS TEMPORARY BRACING, PERMANENT TRUSS RESTRAINT BRACING, & TRUSS MEMBER/COMPONENT BRACING SHALL BE DESIGNED AND SPECIFIED BY THE TRUSS DESIGN ENGINEER, AND SHALL BE FURNISHED BY THE

BRACED AND THE TRUSS MANUFACTURER SHALL DESIGN & PROVIDE BRACING FOR THE BOTTOM CHORD. THE TRUSS

16. ALL BRACING FOR THE TRUSSES SHALL FOLLOW CURRENT BCSI STANDARDS. 17. PERMANENT BUILDING STABILITY BRACING TO TRANSFER LATERAL LOAD FORCES TO THE LATERAL LOAD RESISTING SYSTEM HAS BEEN DESIGNED BY THE STRUCTURAL ENGINEER OF RECORD AND IS SHOWN ON THE PLANS. 18. DROP TOP CHORD GABLE END WALL TRUSSES ARE REQUIRED AT ALL GABLE ENDS UNLESS NOTED OTHERWISE. THE ROOF TRUSS MANUFACTURER IS RESPONSIBLE FOR ALL THE GABLE END WALL TRUSSES.

CONTRACTOR.

1. ALL T&G DECKING SHALL BE 2" THICK (NOMINAL THICKNESS). AT EACH SUPPORT DECKING SHALL BE TOENAILED THROUGH THE TONGUE AND FACE NAILED WITH 16d NAILS @ 30" o/c. LOCATE END HOLES LESS THAN 10" FROM END OF 2. CONTROLLED RANDOM LAYUP IS ALLOWED FOR AREAS WITH <u>3 OR MORE SPANS</u>. IN THE END BAYS EACH PIECE MUST REST ON THE END SUPPORT OR CONTINUE OVER THE FIRST INTERIOR SUPPORT FOR AT LEAST 2'-0". THERE SHALL BE A MINIMUM DISTANCE OF 2'-0" BETWEEN END JOINTS IN ADJACENT COURSES. TO PROVIDE LATERAL RESTRAINT FOR THE SUPPORTING MEMBER, THE PIECES IN AT LEAST THE FIRST AND SECOND COURSES MUST BEAR ON AT LEAST TWO SUPPORTS, WITH END JOINTS IN THESE TWO COURSES OCCURRING ON ALTERNATE SUPPORTS. END JOINTS NOT OCCURRING OVER SUPPORTS SHALL BE MATCHED TONGUED AND GROOVED OR HAVE METAL SPLINES INSERTED AT 3. DECKING SHALL BE SQUARE-END TRIMMED. DECKING SHALL BE LAID WITH THE TONGUE UP THE SLOPE. REFER TO THE T&G DETAIL ON S00X FOR NAILING PATTERN. 4. THE FOLLOWING SPECIES MEET THE ABOVE REQUIREMENTS FOR THE DESIGN PROPERTIES: A. WESTERN RED CEDAR

#### **CONSTRUCTION TESTING:**

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE THE REQUIRED TESTING WITH A THIRD-PARTY TESTING AGENCY.

A. TEST COMPOSITE SAMPLES OF FRESH CONCRETE OBTAINED ACCORDING TO ASTM C 172: a. TESTING FREQUENCY: ONE COMPOSITE SAMPLE FOR EACH 100 cu yd OR FRACTION THEREOF OF EACH CONCRETE MIXTURE PLACED EACH DAY. b. SLUMP: ASTM C 143; ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE. c. AIR CONTENT: ASTM C 231 PRESSURE METHOD, FOR NORMAL-WEIGHT CONCRETE; ASTM C 173 VOLUMETRIC METHOD, FOR LIGHTWEIGHT CONCRETE; ONE TEST FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE.

d. CONCRETE TEMPERATURE: ASTM C 1064; ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEGREES F AND BELOW OR 80 DEGREES F AND ABOVE, AND ONE TEST FOR EACH COMPOSITE SAMPLE. e. CAST AND LABORATORY CURE TWO SETS OF TWO STANDARD CYLINDER SPECIMENS FOR EACH COMPOSITE

f. COMPRESSIVE-STRENGTH TESTS: ASTM C 39; TEST ONE SET OF TWO LABORATORY-CURED SPECIMENS AT 7 DAYS AND ONE SET OF TWO SPECIMENS AT 28 DAYS. A COMPRESSIVE-STRENGTH TEST SHALL BE THE AVERAGE COMPRESSIVE STRENGTH FROM A SET OF TWO SPECIMENS OBTAINED FROM THE SAME COMPOSITE SAMPLE AND

g. STRENGTH OF EACH CONCRETE MIXTURE WILL BE SATISFACTORY IF EVERY AVERAGE OF AND THREE CONSECUTIVE COMPRESSIVE-STRENGTH TESTS EQUALS OR EXCEEDS SPECIFIED COMPRESSIVE-STRENGTH AND NO COMPRESSIVE-STRENGTH TEST VALUE FALLS BELOW SPECIFIED COMPRESSIVE STRENGTH BY MORE THAN 500

h. TEST RESULTS SHALL BE REPORTED IN WRITING TO THE EOR, CONCRETE MANUFACTURER, AND CONTRACTOR

 REFER TO THE SCHEDULE OF SPECIAL INSPECTIONS FOR ADDITIONAL REQUIREMENTS. A. COMPACTION TESTS FOR SOILS SHALL BE ACCORDING TO ASTM D1556, ASTM D2167, ASTM D2937, AND ASTM D6938,

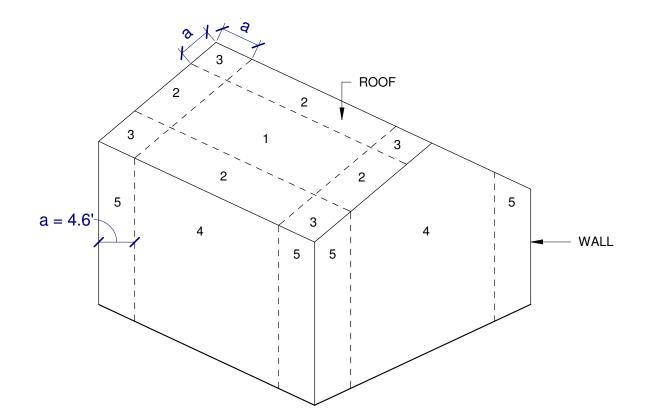
a. PAVED AND BUILDING SLAB AREAS: AT SUBGRADE AND AT EACH COMPACTED FILL AND BACKFILL LAYER, AT LEAST ONE TEST FOR EVERY 2000 sq. ft. BUT IN NO CASE SHALL BE FEWER THAN THREE TESTS. b. FOUNDATION WALL BACKFILL: AT EACH COMPACTED BACKFILL LAYER, AT LEAST ONE TEST FOR EVERY 100 ft OR LESS OF WALL LENGTH BUT NO LESS THAN TWO TESTS.

c. REFER TO THE SCHEDULE OF SPECIAL INSPECTIONS FOR ADDITIONAL REQUIREMENTS. d. FOR AREAS NOT MEETING PROJECT COMPACTION AND BEARING PRESSURE REQUIREMENTS, FOLLOW THE THIRD-PARTY TESTING AGENCY'S RECOMMENDATIONS FOR MEETING PROJECT REQUIREMENTS.

#### SPECIAL INSPECTIONS:

WITHIN 48 HOURS OF TESTING.

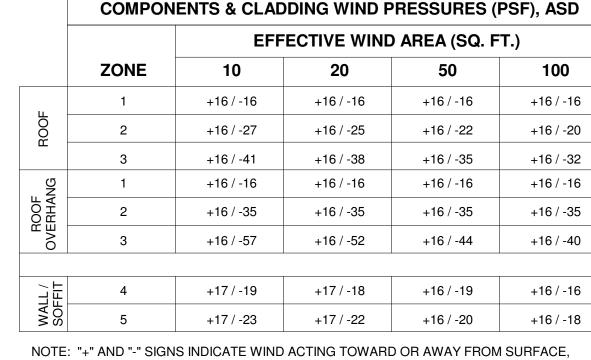
1. REFER TO THE SEPARATE DOCUMENTATION FOR THE STATEMENT OF SPECIAL INSPECTIONS AND THE SCHEDULE OF SPECIAL INSPECTIONS.



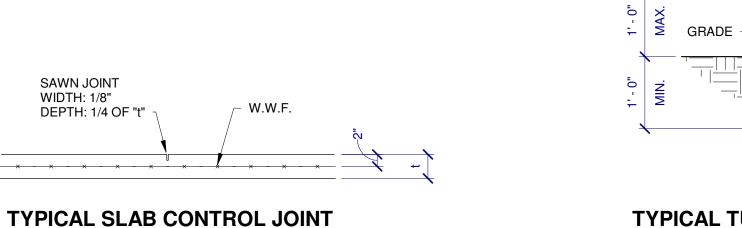
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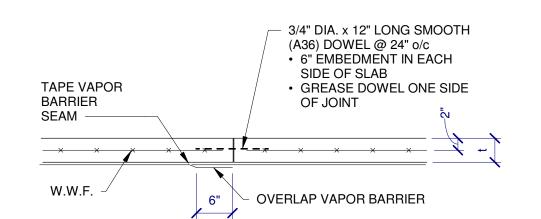
TYPICAL BUILDING WIND ZONES: GABLE / HIP ROOF (27<⊖≤45°)



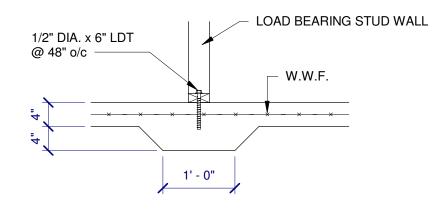
2-#5 CONT. (TOP & BOTT.)



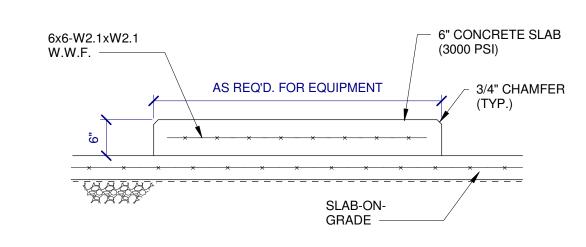
**TYPICAL TURN-DOWN SLAB** 



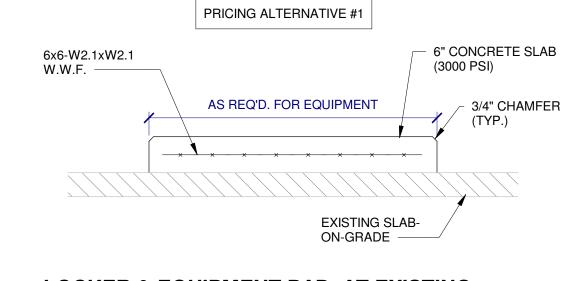
TYPICAL SLAB CONSTRUCTION JOINT w/ DOWELS



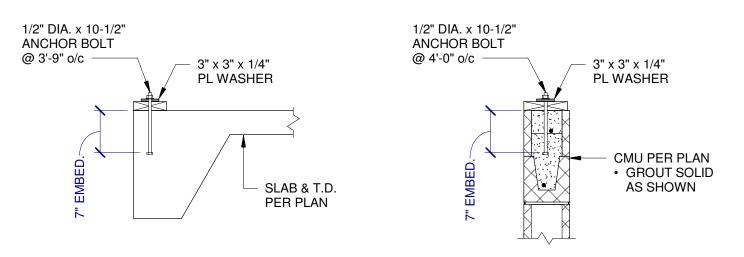
INT. STUD BEARING WALL ON SLAB



LOCKER & EQUIPMENT PAD



LOCKER & EQUIPMENT PAD AT EXISTING



A MINIMUM OF (2) ANCHORS ARE

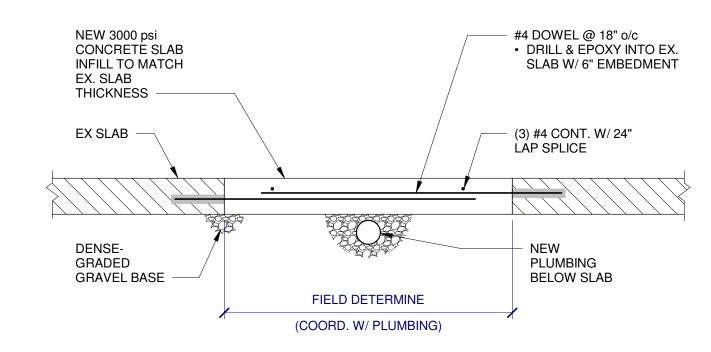
REQUIRED PER SILL PLATE SEGMENT,

WITH (1) ANCHOR LOCATED FROM THE

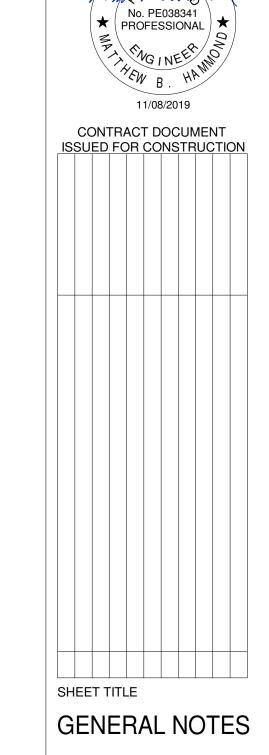
INCHES BUT NOT MORE THAN 12 INCHES.

END OF EACH SEGMENT AT LEAST 4

TYPICAL SILL PLATE ANCHORAGE



TRENCH IN-FILL DETAIL - PRICING ALTERNATIVE #2 3/4" = 1'-0"



SHEET NUMBER

**ARCHITECTURE** 675 Tower Road Marietta, GA 30060-6958

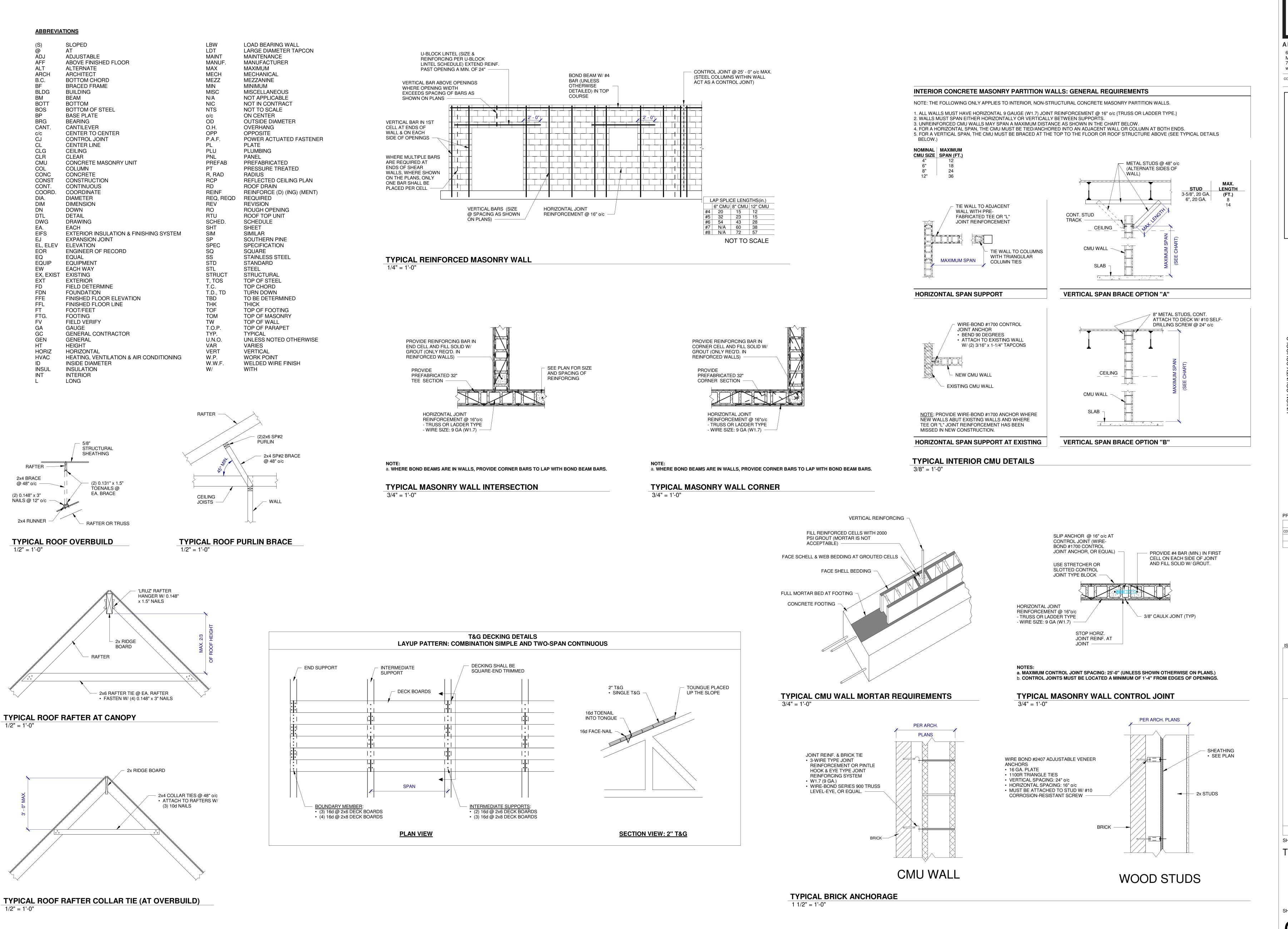
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PERMIT SET

□ 100% CD's

10/30/2019



14

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PROJECT NO: PERMIT SET 10/30/2019 D 100% CD's

No. PE038341 ★ PROFESSIONAL | ★

11/08/2019 CONTRACT DOCUMENT **ISSUED FOR CONSTRUCTION** 

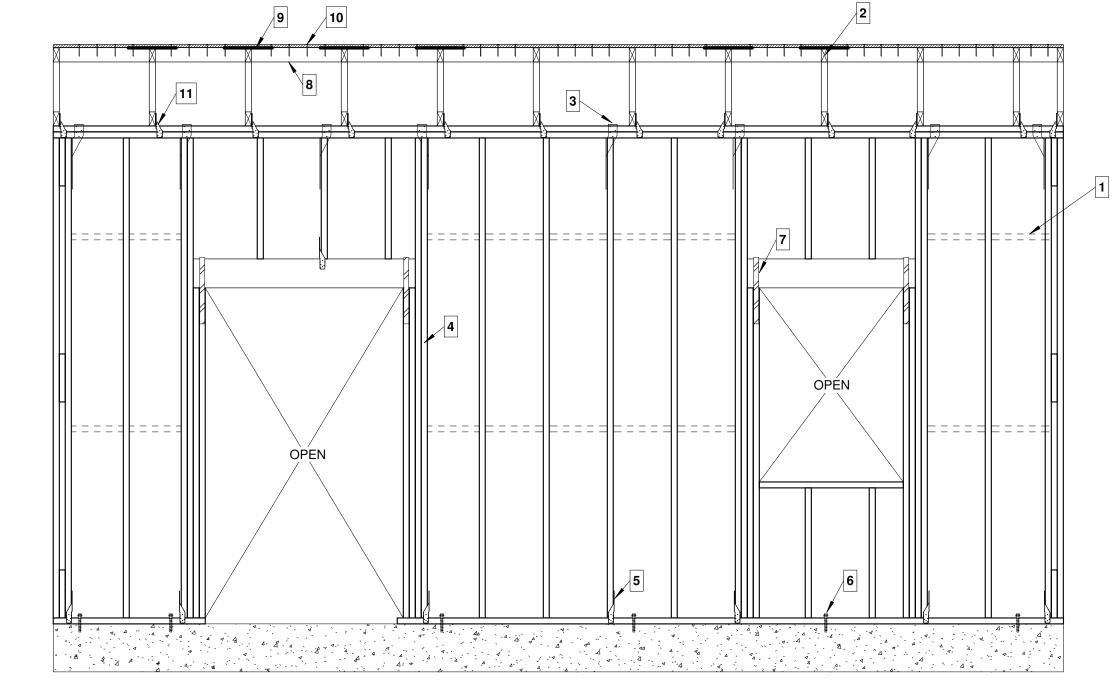
SHEET TITLE TYPICAL DETAILS

	CONNECTION	FASTENING	LOCATION
	Blocking between joists or rafters to top plate	3 - 0.131" x 2-1/2"	toe nail
	2. Ceiling joists to plate	3 - 0.131" x 2-1/2"	toe nail
	3. Ceiling joists, laps over partitions	<u> </u>	face nail
	(see 2012 IBC Table 2308.10.4.1)	4 - 0.148" x 3" minimum	
ᄂ	Ceiling joists to parallel rafters		face nail
<u>5</u> 2	(see 2012 IBC Table 2308.10.4.1)	4 - 0.148" x 3" minimum	
	5. Rafter to plate	0 0 1 1 0 11 11 0 11	toe nail
L	(see 2012 IBC Table 2308.10.4.1)	3 - 0.148" x 3"	
	Built-up girder and beams	0.148" x 3" @ 20" o/c	facenail at top and bottom staggere on opposite side
		3 - 0.148" x 3"	face nail at ends and at each splice
	7. Collar tie to rafter	3 - 0.148" x 3"	face nail
L	8. Jack rafter to hip	5 - 0.148" x 3-1/2"	toe nail
L	9. Jack rafter to hip	4 - 0.148" x 3"	face nail
	10. Roof rafter to 2-by ridge beam	3 - 0.148" x 3-1/2"	toe nail or face nail
Т	11. Sole plate to joist or blocking	0.148" x 3" @ 14" o/c	face nail
H	12. Sole plate to joist or blocking at braced wall panel	3 - 0.148" x 3" @ 14" o/c	braced wall panels
	13. Top plate to stud	3 - 0.148" x 3"	end nail
	14. Stud to sole plate	4 - 0.131" x 2-1/2"	toe nail
	15. Stud to sole plate	3 - 0.148" x 3"	end nail
F	16. Double studs	0.148" x 3" @ 20" o/c	face nail
1	17. Double top plates	0.148" x 3" @ 14" o/c	face nail
	18. Double top plate splice	10 - 0.148" x 3"	each side of lap splice
	19. Top plates, laps and intersections	3 - 0.148" x 3"	face nail
	20. Continuous header, two pieces	2 - 0.148 x 3"	face nail @ 16" o/c along each edg
	21. Continuous header to stud	4 - 0.131" x 2-1/2"	toe nail
	22. 1" diagonal brace to each stud and plate	2 - 0.131" x 2-1/2"	face nail
	23. 1" x 8" sheathing to each bearing	3 - 0.131" x 2-1/2"	face nail
	24. Wider than 1" x 8" sheathing to each bearing	3 - 0.131" x 2-1/2"	face nail
	25. Built-up corner studs	2 - 0.148" x 3"	face nail @ 12" o/c
_	26. Built-up stud-pack	2 rows - 0.148" x 3"	face nail @ 9" o/c (each ply)
Т	27. Joist to sill or girder	3 - 0.131" x 2-1/2"	toe nail
	28. Bridging to joist	2 - 0.131" x 2-1/2"	toe nail each end
	29. 1" x 6" subfloor or less to each joist	2 - 0.131" x 2-1/2"	face nail
	30. Wider than 1" x 6" subfloor to each joist	3 - 0.131" x 2-1/2"	face nail
	31. 2" subfloor to joist or girder	3 - 0.148" x 3"	blind and face nail
5_	32. Rim joist to top plate	0.131" x 2-1/2" @ 6" o/c	toe nail
2	33. Built-up girder and beams	0.148" x 3" @ 20" o/c	face nail at top and bottom staggere on opposite side
L		3 - 0.148" x 3"	face nail at ends and at each splice
	34. 2" planks at each bearing	3 - 0.148" x 3"	face nail
	35. Joist to band joist	4 - 0.148" x 3"	face nail
	36. Ledger strip	4 - 0.148" x 3"	face nail at each joist
	37. Band (rim) joist or blocking to sill plate	0.131" x 2-1/2" @ 6" o/c	toe nail

6. NAIL ALTERNATIVE FOR ALL NAIL SIZES: Simpson Strong-Drive SDS25 HEAVY-DUTY CONNECTOR SCREW OR EQUAL.

STRUCTURAL WOOD SHEATHING SCHEDULE											
		MINIMUM		NAIL SPAC	ING						
LOCATION APA RATIN		THICKNESS	NAIL SIZE	BOUNDARY	FIELD						
1. Roof	40/20	19/32"	0.131"x2.5"	4"	12"						
<ol><li>Exterior Wall</li></ol>	24/16	7/16"	0.131"x2.5"	6"	12"						

LOAD BE	EARING WOOL	HEADER SC	HEDULE						
MAX. SPAN (ft.)	SIZE	JACK STUDS	KING STUDS						
3'-6"	(2) 2x8	2	1						
4'-6"	(2) 2x10	2	1						
6'-6"	(3) 2x12	3	1						
9'-6"	3.5x9.25 LVL	3	2						
NOTES:									
TOP & BOTTOM (MIN.)  - NAIL EACH ADDITIONAL PLY WITH AN ADDITIONAL ROWS OF NAILS.									
- ALL HEADERS TO BE PLACED DIRECTLY ABOVE OPENING.									
- NAIL ALL JACK STUDS AND KING STUDS TOGETHER WITH 16d NAILS @ 24" o/c									
- ALL 2x HEADE	RS SHALL BE SO	UTHERN PINE #2							
	DERS SHALL BE V Y PER MANUF. SF		FASTEN						
+ +	NAILING F	PATTERN FOR EAC	CH PLY						
1									



**EXTERIOR WALL KEYNOTES** 

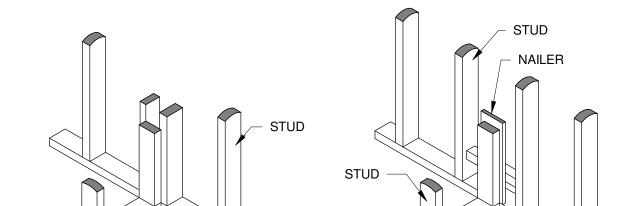
- 1. PROVIDE BLOCKING @ 48" o/c IF WALL IS NOT SHEATHED ON BOTH SIDES. 2. ROOF TRUSSES. ATTACH EACH TRUSS TO THE TOP PLATE (OR BEAM) WITH (2)-12d TOENAILS AND A SIMPSON 'H10A'
- HURRICANE TIE. 3. ATTACH THE DOUBLE 2x TOP PLATE TO THE FULL-HEIGHT VERTICAL STUDS @ 48" o/c WITH A SIMPSON 'H6' TIE. ALSO PROVIDE THE 'H6' TIE ON THE KING STUD ON BOTH SIDES OF AN OPENING. THE 'H6' TOP PLATE ANCHOR SHOULD ATTACH TO THE SAME STUD AS THE 'H8' SILL PLATE TIE. 4. PROVIDE DOUBLE KING STUDS AT OPENINGS. 5. PROVIDE A SIMPSON 'H8' HURRICANE TIE @ 48" TO TIE STUD TO SILL PLATE. ALSO PROVIDE THE 'H8' TIE ON BOTH SIDES OF OPENINGS. THE 'H8' SILL PLATE TIE SHOULD ATTACH TO THE SAME STUD AS THE 'H6' TOP PLATE TIE.
- 6. SEE S001 FOR SILL PLATE ANCHORAGE. ACCEPTABLE ANCHORS: 'LDT' (LARGE DIAMETER TAPCON, BY RED HEAD, 'TITEN HD' BY SIMPSON STRONGTIE, OR EQUAL. 7. PROVIDE SIMPSON 'LSTA18' STRAP AT ENDS OF HEADER TO JACK STUD. BEND AND NAIL TOP OF STRAP OVER HEADER AS REQUIRED. 8. 2x4 BLOCKING (COLLECTOR). ATTACH TO TRUSS W/ (4) 10d TOENAILS AT EACH END. 9. ATTACH SIMPSON 'LSTA12' STRAP ACROSS TOP OF TRUSS

AND CONNECT TO BLOCKING ON EACH SIDE. ATTACH STRAP TO BLOCKING WITH (5) 10d NAILS ON EACH SIDE.

10. BOUNDARY EDGE NAILING PER STRUCTURAL WOOD SHEATHING SCHEDULE. 11. SEE PLAN FOR SPECIFIED TRUSS TIE TO TOP PLATE.

VERSA-LAM® Beam Details

**TYPICAL EXTERIOR & LOAD BEARING WALL** 1/2" = 1'-0"



MULTIPLE STUDS AT CORNERS

UPPER TOP PLATE LAPS

CONTINUOUS BOTTOM PLATE

(8) 16d NAILS

ON EACH SIDE

OF SPLICE

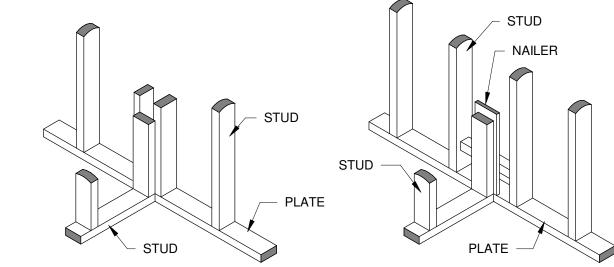
TOP PLATE INTERSECTION DETAIL

16d NAILS @ 16" o/c

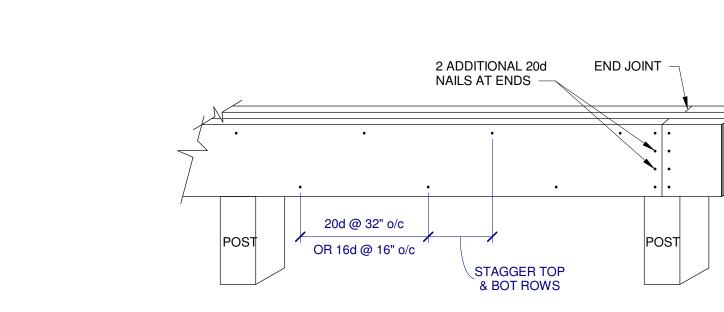
PLATE -

1/2" = 1'-0"

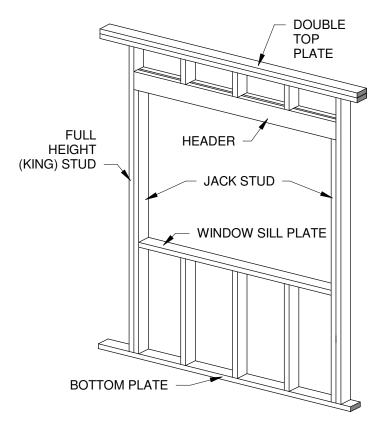
1/2" = 1'-0"



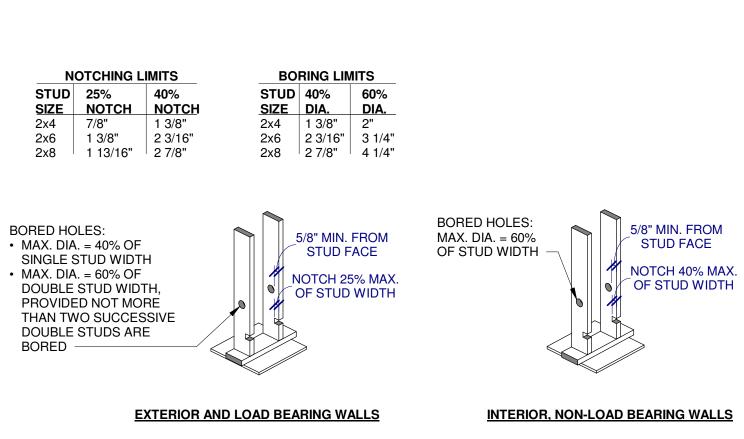
WALL FRAMING AT INTERSECTING PARTITIONS

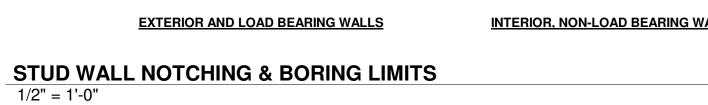


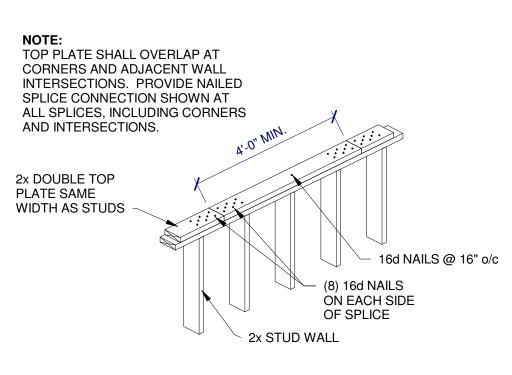
**NAILING BUILT-UP BEAMS AND GIRDERS** 1/2" = 1'-0"



**WALL OPENING** 1/2" = 1'-0"

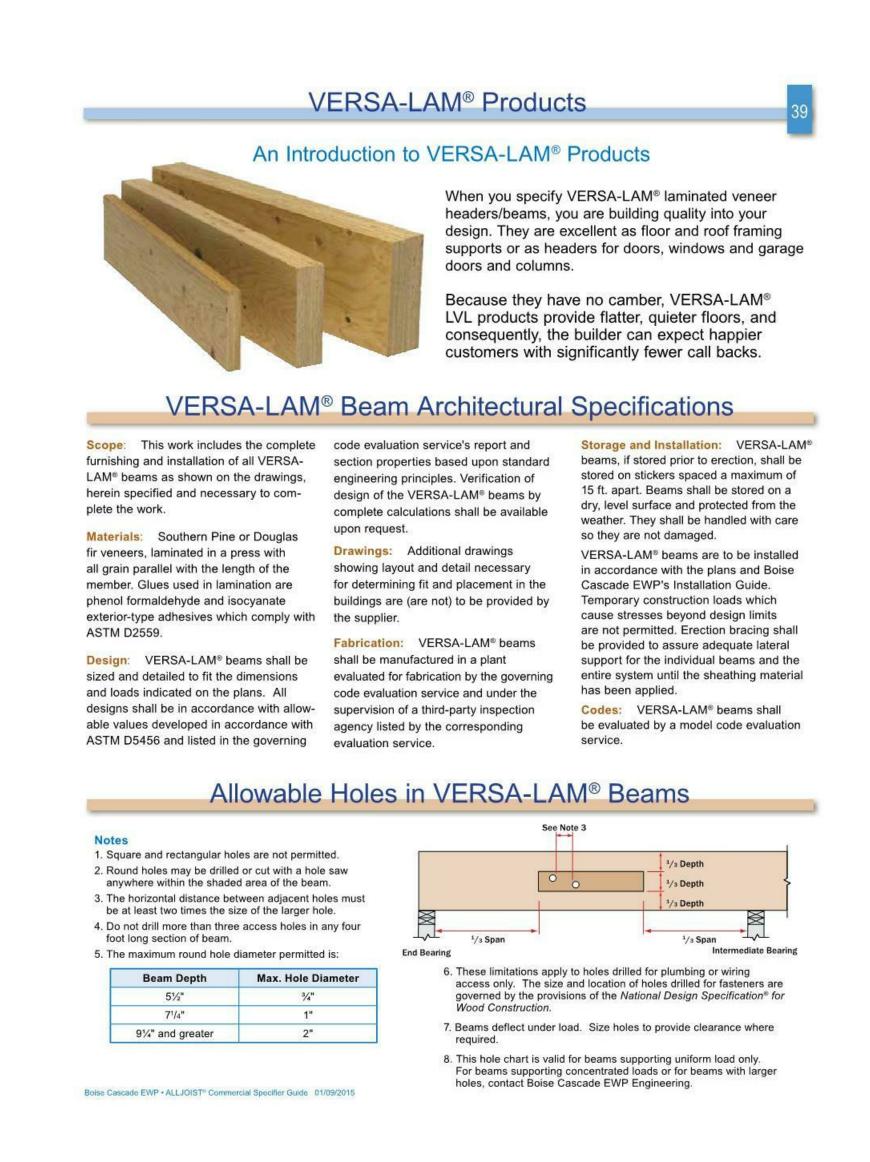




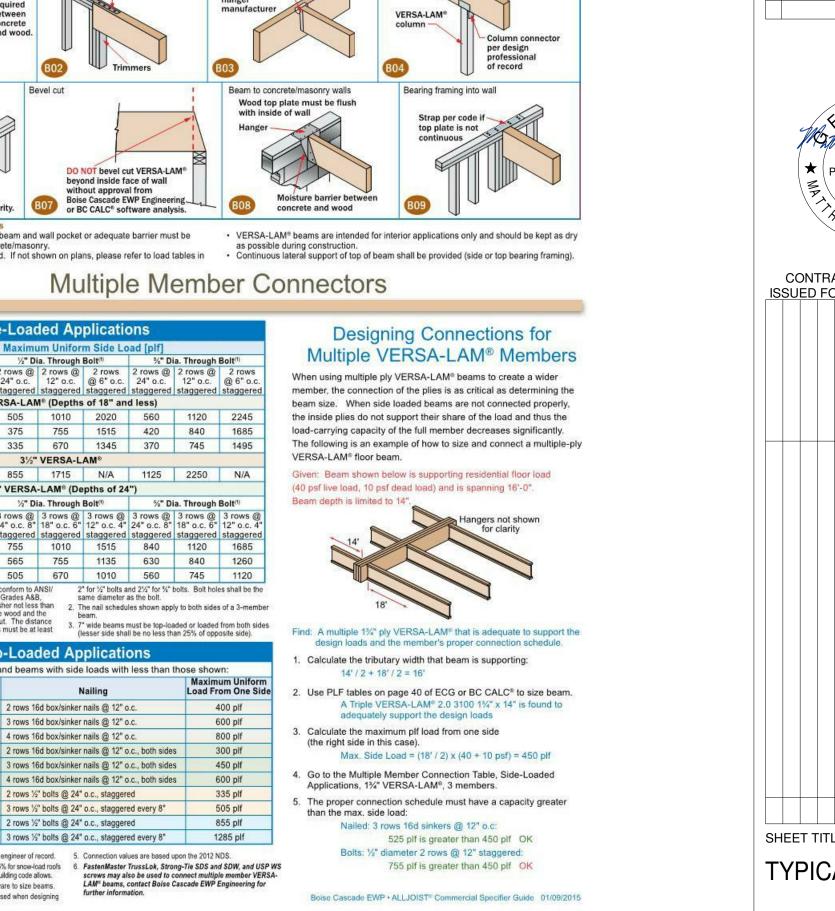


TOP PLATE SPLICE DETAIL 1/2" = 1'-0"

MARK	ARK SHEATHING FASTENERS		FASTENER SPACING	SIMPSON HOLDOWN AT ENDS OF WALL	HOLDOWN TO STUD- PACK FASTENING	STUD-PACK @ ENDS OF WALL	
SW-1	7/16" OSB (EXT.)	8d NAILS	EDGE: @ 6" o/c FIELD: @ 12" o/c	HD8-SD2.5 w/ 7/8" DIA. THREADED ROD & C6 EPOXY (8" EMBED. IN CONCRETE)	(20) 1/4x2 1/2 SDS	(2) 2x6	







**ARCHITECTURE** 

Marietta, GA 30060-6958

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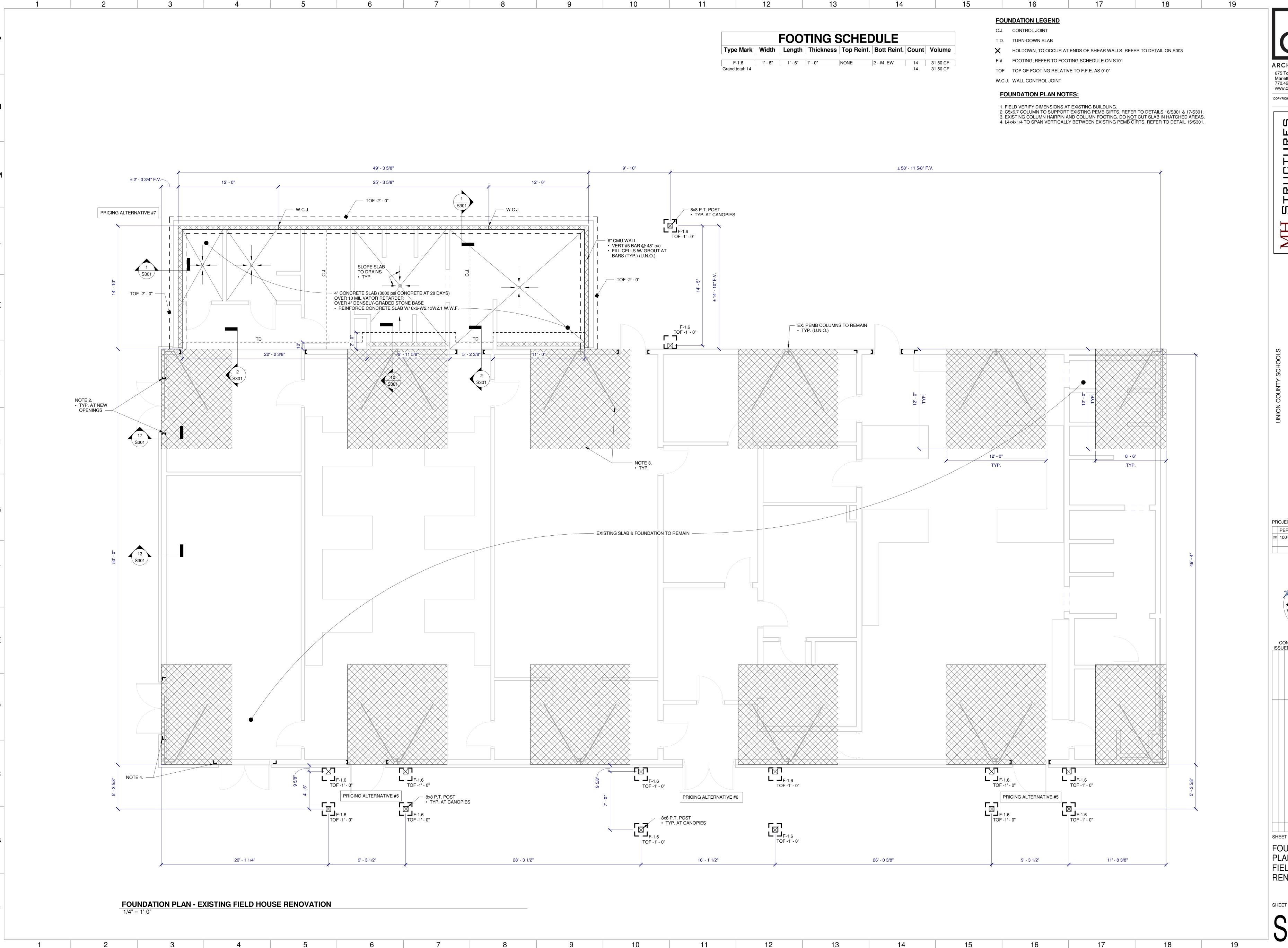
675 Tower Road

770.423.0016 www.cdhpartners.com

PROJECT NO: PERMIT SET 10/30/2019 D 100% CD's

No. PE038341 ★ PROFESSIONAL | ★ 11/08/2019 CONTRACT DOCUMENT **ISSUED FOR CONSTRUCTION** 

SHEET TITLE TYPICAL DETAILS



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Solution 192-4889

STRUCTURAL ENGINEERING

7 Dallas Hwy www.mhstructure
te 201 (404) 495
vder Springs, GA 30127

SOUNTY HIGH SCHOO FIELD HOUSE

PROJECT NO: 19097.00
PERMIT SET 10/30/2019
CD 100% CD's 11/08/2019

No. PE038341
PROFESSIONAL

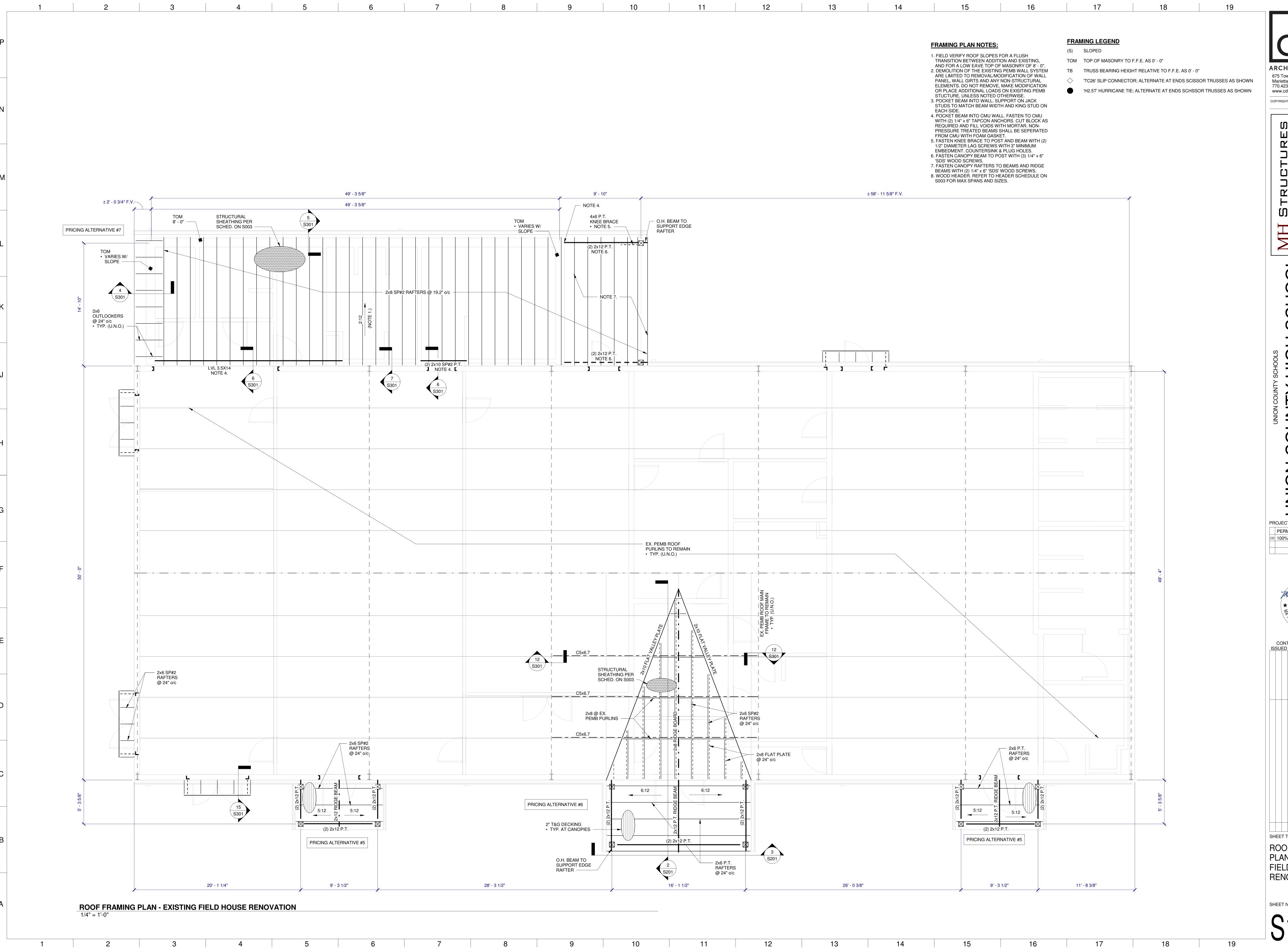
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CONTRACT DOCUMENT
ISSUED FOR CONSTRUCTION

FOUNDATION
PLAN - EXISTING
FIELD HOUSE
RENOVATION

SHEET NUMBER

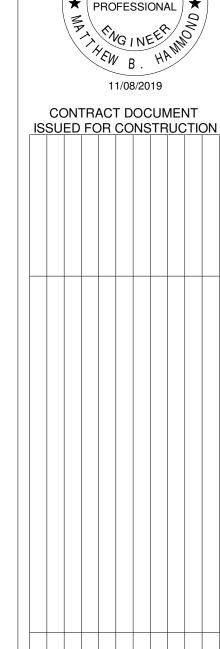
S101



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SHEET TITLE

ROOF FRAMING PLAN - EXISTING FIELD HOUSE RENOVATION

**FOUNDATION LEGEND** 

C.J. CONTROL JOINT

T.D. TURN-DOWN SLAB

HOLDOWN, TO OCCUR AT ENDS OF SHEAR WALLS; REFER TO DETAIL ON S003

F-# FOOTING; REFER TO FOOTING SCHEDULE ON S101

TOF TOP OF FOOTING RELATIVE TO F.F.E. AS 0'-0" W.C.J. WALL CONTROL JOINT

**FOUNDATION PLAN NOTES:** 

1. FIELD VERIFY DIMENSIONS AT EXISTING BUILDLING. 2. C5x6.7 COLUMN TO SUPPORT EXISTING PEMB GIRTS. REFER TO DETAILS 16/S301 & 17/S301.

3. EXISTING COLUMN HAIRPIN AND COLUMN FOOTING. DO <u>NOT</u> CUT SLAB IN HATCHED AREAS.

4. L4x4x1/4 TO SPAN VERTICALLY BETWEEN EXISTING PEMB GIRTS. REFER TO DETAIL 15/S301.

FRAMING LEGEND

(S) SLOPED

TOM TOP OF MASONRY TO F.F.E. AS 0' - 0"

TB TRUSS BEARING HEIGHT RELATIVE TO F.F.E. AS 0' - 0"

'H2.5T' HURRICANE TIE; ALTERNATE AT ENDS SCHSSOR TRUSSES AS SHOWN

14

15

STUCTURE, UNLESS NOTED OTHERWISE. 3. POCKET BEAM INTO WALL. SUPPORT ON JACK STUDS TO MATCH BEAM WIDTH AND KING STUD ON EACH SIDE.

1. FIELD VERIFY ROOF SLOPES FOR A FLUSH

TRANSITION BETWEEN ADDITION AND EXISTING,

AND FOR A LOW EAVE TOP OF MASONRY OF 8' - 0".

2. DEMOLITION OF THE EXISTING PEMB WALL SYSTEM ARE LIMITED TO REMOVAL/MODIFICATION OF WALL

PANEL, WALL GIRTS AND ANY NON-STRUCTURAL ELEMENTS. DO NOT REMOVE, MAKE MODIFICATION

OR PLACE ADDITIONAL LOADS ON EXISITING PEMB

**FRAMING PLAN NOTES:** 

4. POCKET BEAM INTO CMU WALL. FASTEN TO CMU WITH (2) 1/4" x 6" TAPCON ANCHORS. CUT BLOCK AS

REQUIRED AND FILL VOIDS WITH MORTAR. NON-PRESSURE TREATED BEAMS SHALL BE SEPERATED FROM CMU WITH FOAM GASKET. 5. FASTEN KNEE BRACE TO POST AND BEAM WITH (2) 1/2" DIAMETER LAG SCREWS WITH 3" MINIMUM

EMBEDMENT. COUNTERSINK & PLUG HOLES. 6. FASTEN CANOPY BEAM TO POST WITH (3) 1/4" x 6" 'SDS' WOOD SCREWS.

7. FASTEN CANOPY RAFTERS TO BEAMS AND RIDGE BEAMS WITH (2) 1/4" x 6" 'SDS' WOOD SCREWS. 8. WOOD HEADER. REFER TO HEADER SCHEDULE ON S003 FOR MAX SPANS AND SIZES.

TB: 9' - 1 1/8"
• TYP. (U.N.O.)

45' - 1 1/2" 13' - 11 1/8" 13' - 11 1/2" 16' - 1 1/2" SW-1 8x8 P.T. POST TYP. AT CANOPIES 4" CONCRETE SLAB (3000 psi CONCRETE AT 28 DAYS) OVER 10

MIL VAPOR RETARDER OVER 4" DENSELY-GRADED STONE BASE

• REINFORCE CONCRETE SLAB W/ 6x6-W2.1xW2.1 W.W.F. SLOPE SLAB TO DRAINS • TYP. ——— 3 S301

FOUNDATION PLAN - NEW FIELD HOUSE

1/4" = 1'-0"

**ROOF FRAMING PLAN - NEW FIELD HOUSE** 1/4" = 1'-0"

45' - 1 1/2" 16' - 1 1/2" SW-1 4x6 P.T. KNEE BRACE (2) 2x12 P.T. — 2" T&G DECKING TYP. AT CANOPIES 6:12 OVERBUILD RAFTERS TB 9' - 1 1/8" PER TYPICAL DETAIL ON TYP. (U.N.O.) — NOTE 8. NOTE 8. 2x6 SP#2 RAFTERS @ 24" o/c STRUCTURAL
— SHEATHING PER
SCHED. ON S003 **RAFTERS** @ 24" o/c

SW-1

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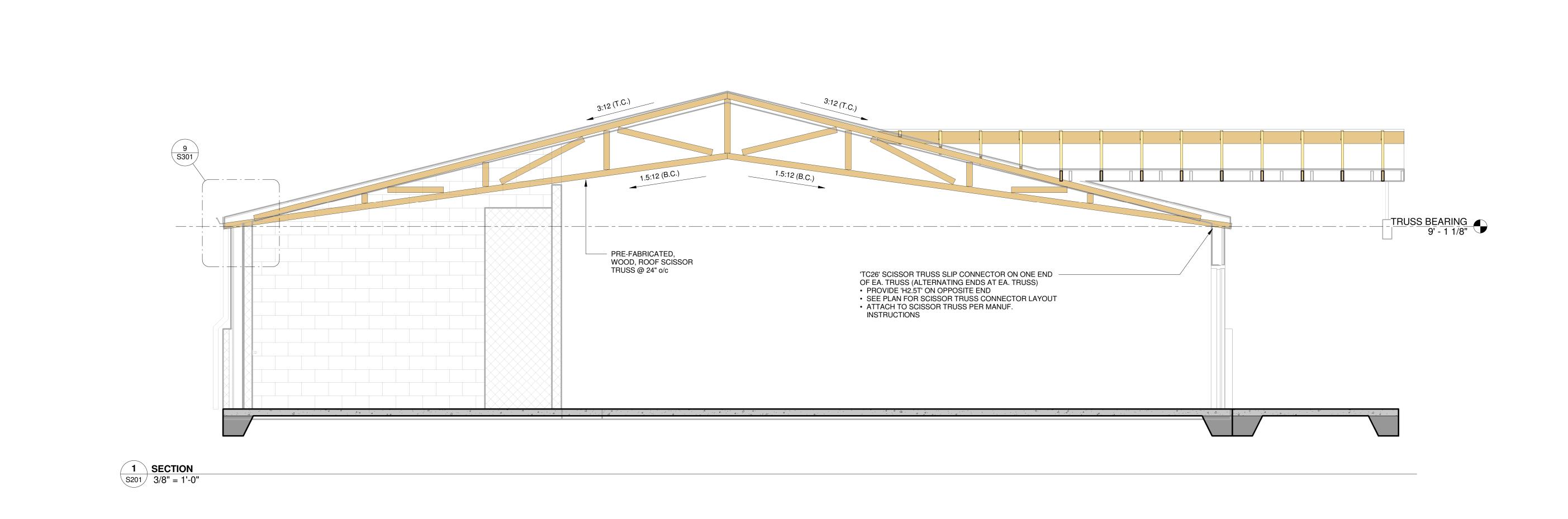


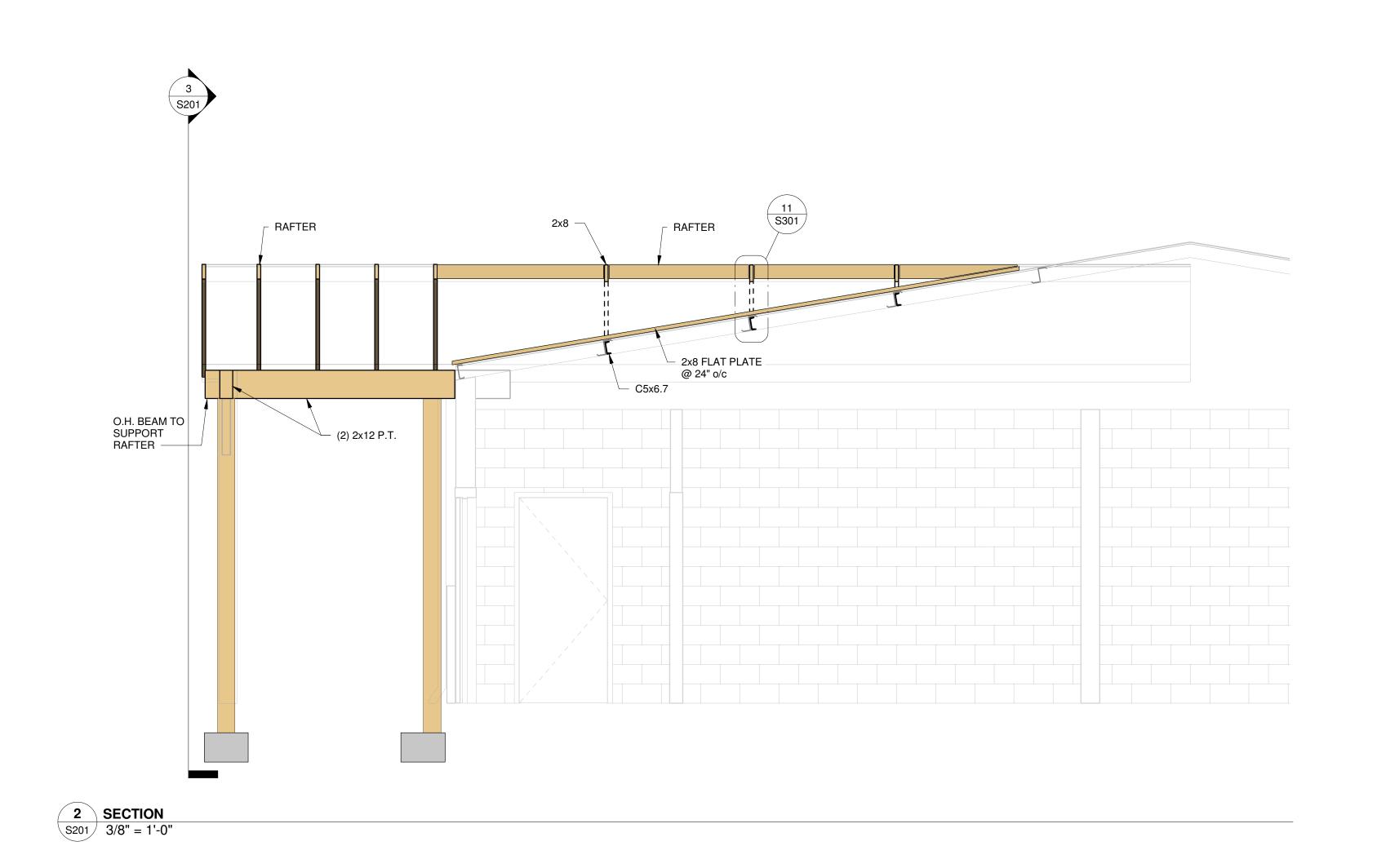
SHEET TITLE FOUNDATION & ROOF FRAMING

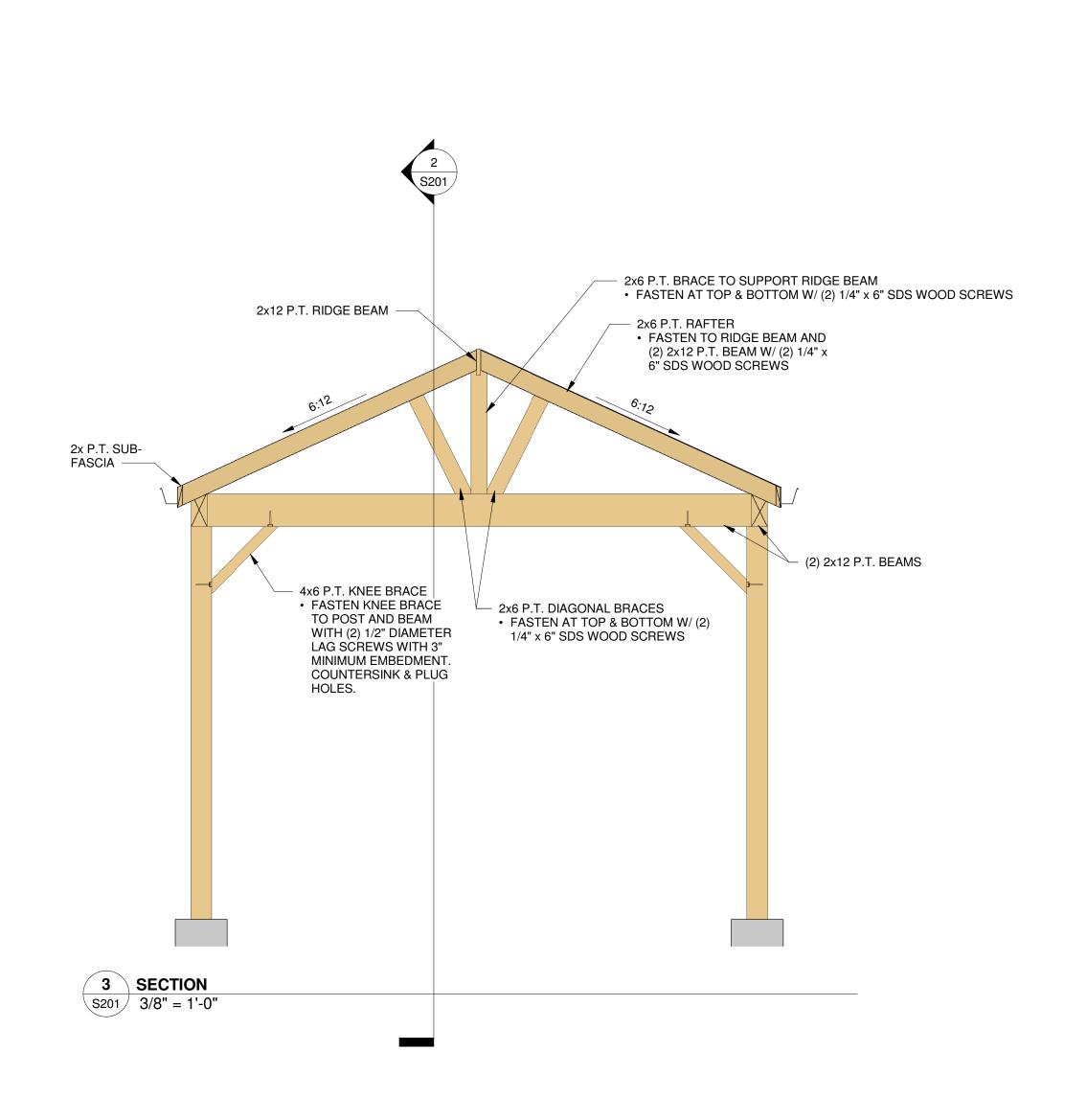
SHEET NUMBER

PLAN - NEW

FIELD HOUSE





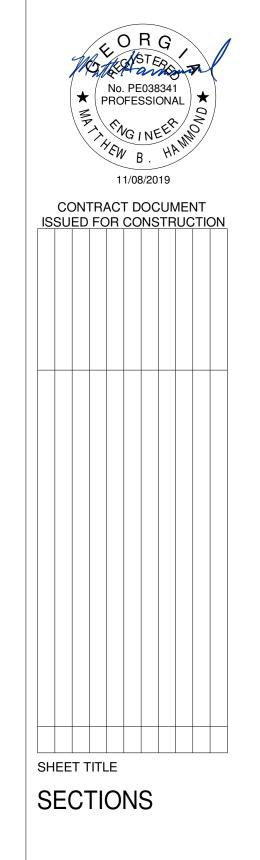


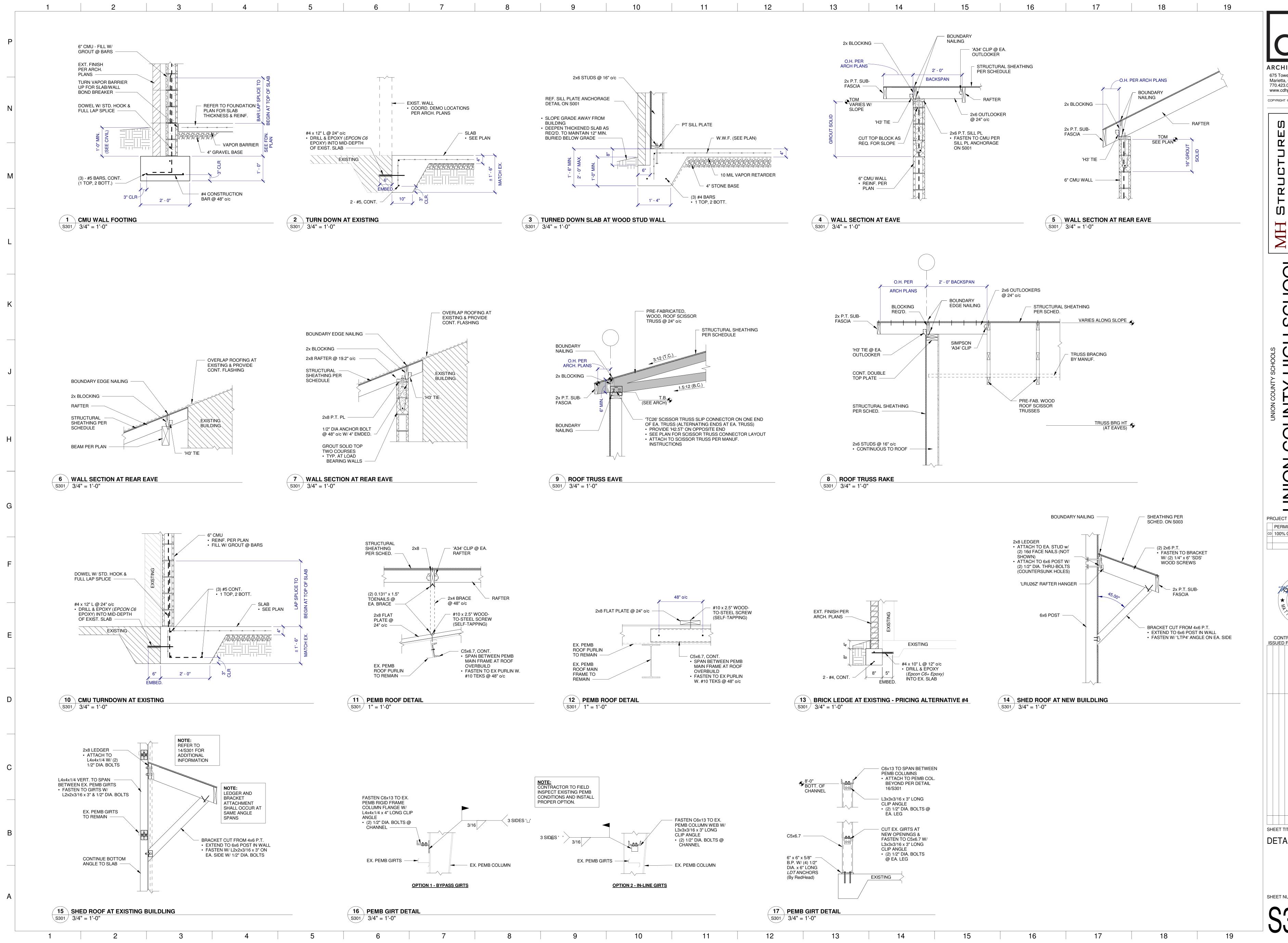
14



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PROJECT NO: PERMIT SET 10/30/2019





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PROJECT NO: PERMIT SET 10/30/2019 CD 100% CD's

No. PE038341 ★ PROFESSIONAL ★ 11/08/2019 CONTRACT DOCUMENT ISSUED FOR CONSTRUCTION

SHEET TITLE DETAILS

# **GENERAL HVAC NOTES**

- ALL MECHANICAL EQUIPMENT AND INSTALLATIONS SHALL CONFORM WITH THE REQUIREMENTS OF THE LOCAL CODE OFFICE'S LATEST APPROVED VERSION OF THE INTERNATIONAL MECHANICAL CODE, THE INTERNATIONAL BLDG. CODE, THE STATE ENERGY CODE, NFPA 54, NFPA 90A, 96, 101, UNDERWRITERS LABORATORIES AND ALL APPLICABLE LOCAL CODES AND ORDINANCES.
- PRIOR TO PURCHASING ANY MATERIALS OR STARTING ANY WORK, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DUCTWORK SIZES, EQUIPMENT LOCATIONS, ETC. SHOWN ON THE DRAWINGS OR AFFECTING THIS WORK AND SHALL REPORT ANY DEVIATIONS OR CONFLICTS TO THE ARCHITECT.
- SUBMITTALS AND SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ARCHITECT AND MECHANICAL ENGINEER PRIOR TO ORDERING, PURCHASING, OR FABRICATING ANY MECHANICAL EQUIPMENT. THESE SHALL INCLUDE ALL EQUIPMENT SPECIFIED ON THE PLANS OR IN THE PROJECT SPECIFICATIONS.
- ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH DISCONNECT SWITCHES AT EACH PIECE OF EQUIPMENT. COORDINATE SWITCH TYPE (FUSED OR NON-FUSED) WITH EQUIPMENT CHARACTERISTICS, MANUFACTURER'S RECOMMENDATIONS, AND ELECTRICAL PLANS AND SPECIFICATIONS. SEE SPECIFICATIONS FOR DESCRIPTION OF INTERFACE WITH DIVISION 16
- ALL REQUIRED CONTROL WIRING NOT SHOWN ON ELECTRICAL DRAWINGS SHALL BE INCLUDED AS PART OF THE MECHANICAL WORK. WIRING IN HVAC PLENUM SPACES SHALL BE INSTALLED ACCORDING TO CODE REQUIREMENTS.
- UNLESS OTHERWISE NOTED, STARTERS, TRANSFORMERS, CONTROLS AND CONTROL WIRING REQUIRED FOR ALL MECHANICAL SYSTEMS SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
- INSTALL FIRE DAMPERS IN ALL RATED WALL, FLOOR, AND CEILING PENETRATIONS AS APPLICABLE. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF RATED AREAS. PROVIDE ACCESS DOORS IN DUCT AT EACH FIRE DAMPER LOCATION. INSTALL SMOKE DAMPERS IN ALL DUCT PENETRATIONS THROUGH SMOKE RATED WALLS. WHERE DUCTS PENETRATE WALLS THAT CARRY BOTH SMOKE AND FIRE RATINGS, THE DAMPERS INSTALLED SHALL BE COMBINATION SMOKE AND FIRE DAMPERS. ALL DAMPERS SHALL BE U.L. 555 LABELED.
- FIRE ALARM CONTRACTOR SHALL PROVIDE SMOKE DETECTORS FOR THE SUPPLY AIR TRUNKS OF ALL HVAC EQUIPMENT SUPPLYING GREATER THAN 2000 CFM TO ANY SPACE. PER IMC 606, DUCT SMOKE DETECTORS SHALL SHUT DOWN THE AIR DISTRIBUTION SYSTEM UPON ACTIVATION. PER IMC 606, DUCT SMOKE DETECTORS TO BE CONNECTED TO THE BUILDING FIRE ALARM PANEL AS APPLICABLE. IF THE OCCUPANCY DOES NOT REQUIRE A FIRE ALARM PANEL, THE ACTIVATION OF DUCT SMOKE DETECTORS SHALL ACTIVATE AN AUDIBLE AND VISIBLE SIGNAL IN AN APPROVED LOCATION. SIGNAL TO BE IDENTIFIED AS "AIR DUCT DETECTOR TROUBLE". HVAC UNITS MAY BE RESET AT FIRE ALARM PANEL.
- FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR ALL WIRING AND EQUIPMENT TO MONITOR SMOKE DETECTORS AND SHUT DOWN HVAC UNIT UPON SMOKE DETECTOR ACTIVATION. FIRE ALARM CONTRACTOR SHALL PROVIDE DUCT DETECTORS, AND MECHANICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLING DETECTOR IN DUCT. FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND OPERATION OF BUILDING FIRE ALARM SYSTEM.
- 10. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- SUPPLY, RETURN, EXHAUST, AND OUTDOOR AIR DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL AS RECOMMENDED IN SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS, LATEST EDITION. ALL JOINTS AND SEAMS IN SUPPLY AND RETURN SHEET METAL DUCTWORK SHALL BE SEALED WITH DUCT SEALER TO SMACNA CLASS A, NO CLOTH DUCT TAPE IS
- ALL SHEET METAL SUPPLY, RETURN, AND VENTILATION AIR DUCT WORK SHALL BE INSULATED WITH 2" THICK FIBERGLASS DUCT INSULATION WITH FOIL VAPOR BARRIER, U.L. LISTED, MINIMUM R-6 OR OTHERWISE AS REQUIRED BY LOCAL ENERGY CODES. USE R-8 IN ATTICS AND AREAS OUTSIDE THE INSULATION ENVELOPE. DUCTS OUTSIDE OF THE BUILDING ENVELOPE SHALL BE INSULATED WITH ASJ BOARD, R-8. AND WRAPPED WITH WEATHERPROOF COVERING. EXHAUST DUCT WORK SHALL BE INSULATED SAME AS SUPPLY DUCT WORK WITHIN 10' OF EXTERIOR WALL OR ROOF OPENING.
- 13. ALL MECHANICAL EQUIPMENT SHALL BE LABELED WITH BAKELITE NAMEPLATE WITH 2" HIGH WHITE LETTERS ON A BLACK BACKGROUND. NAMEPLATE SHALL SHOW EQUIPMENT TAG USED ON THESE DRAWINGS. ELECTRICAL DISCONNECTS FOR EQUIPMENT SHALL BE LABELED TO MATCH EQUIPMENT
- ALL DUCTWORK SHALL BE SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT HANG FROM OR REST ON CEILING TILES OR CEILING STRUCTURE. DUCT SUPPORTS AND CONNECTION TO STRUCTURE SHALL BE AS PER SMACNA STANDARDS.
- 15. FLEXIBLE DUCTWORK SHALL BE THERMAFLEX M-KE (U.L. 181 LISTED, CLASS 1 FLEXIBLE AIR DUCT) OR EQUAL. PROVIDE THERMAFLEX M-KE R-6 (R-6 MINIMUM VALUE OR AS REQUIRED BY LOCAL ENERGY CODE) IN UNCONDITIONED SPACES. USE R-8 IN ATTICS AND AREAS OUTSIDE THE INSULATION ENVELOPE. AIR CONNECTORS ARE NOT ACCEPTABLE. SIZE TO MATCH DEVICE NECK, PROVIDE ROUND GALVANIZED STEEL DUCT RUN-OUTS TO PROVIDE A MAXIMUM FLEXIBLE DUCT LENGTH OF 5'-0". FLEXIBLE DUCTWORK SHALL BE ROUTED AS STRAIGHT AS POSSIBLE AND SHALL BE ROUTED AND SUPPORTED WITHOUT FORMING CRIMPS OR OTHER AIR FLOW RESTRICTIONS. PROVIDE SQUARE TO ROUND ADAPTERS OR BOOTS AS REQUIRED TO CONNECT TO AIR DEVICE
- BRANCH RUN-OUT DUCTS SHALL BE SAME SIZE AS DIFFUSER NECK IF NOT NOTED OTHERWISE. 17. SHEET METAL DUCTWORK SHOWN AS BEING INTERNALLY LINED SHALL BE LINED WITH 1" THICK, 3 LB/CUFT. DENSITY DUCT LINER, MINIMUM R-4 OR AS REQUIRED BY APPLICABLE ENERGY CODE, CERTAINTEED "TOUGHGARD" OR EQUAL BY JOHNS-MANVILLE OR KNAUF. LINE ALL DUCTWORK A MINIMUM OF 15'-0" DOWNSTREAM AND UPSTREAM (WHERE POSSIBLE) OF ALL AIR HANDLING UNITS, FAN COIL UNITS, AND TERMINAL UNITS. LEADING EDGE OF INSULATION SHALL HAVE SHEET METAL
- DUCTWORK DIMENSIONS SHOWN ON DRAWING ARE INSIDE CLEAR DIMENSIONS. CONRACTOR SHALL ADJUST TOTAL DUCT WORK DIMENSIONS TO ACHIEVE SHOWN INSIDE CLEAR DIMENSIONS.

NOSING. DUCT THAT IS INTERNALLY INSULATED SHALL BE EXTERNALLY INSULATED AS WELL.

- DUCTWORK AND EQUIPMENT SHOWN IS DIAGRAMMATIC. COORDINATE AND ROUTE DUCTWORK TO MEET JOB REQUIREMENTS. LOCATION OF EQUIPMENT MUST BE COORDINATED WITH ALL DISCIPLINES BEFORE FINAL LOCATIONS ARE SELECTED. WEIGHTS OF EQUIPMENT MUST BE VERIFIED AND COORDINATED WITH STRUCTURAL SYSTEMS MANAGERS BEFORE EQUIPMENT CAN BE MOVED INTO LOCATION OR INSTALLED.
- 20. ALL CONDENSATE DRAIN LINES FROM HVAC EQUIPMENT LOCATED INSIDE THE BUILDING SHALL BE TRAPPED AND SHALL DRAIN INTO BUILDING FLOOR DRAINS, ROOF DRAINS, OR STORM DRAINS. CONDENSATE SHALL BE INSULATED SCHEDULE 40 PVC (EXCEPT INSULATED TYPE L COPPER IN HVAC PLENUMS). CONDENSTATE SHALL BE PUMPED AS REQUIRED.
- 21. ALL PIPING ABOVE GRADE SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE. PIPE HUNG FROM JOISTS SHALL BE HUNG FROM THE TOP CHORD OF JOISTS.
- 22. ALL PIPE AND DUCT PENETRATIONS OF FIRE AND/OR SMOKE RATED ASSEMBLIES SHALL BE FIRESTOPPED AS REQUIRED TO RESTORE ASSEMBLY TO ORIGINAL INTEGRITY. FIRE BARRIER PRODUCTS SHALL BE MANUFACTURED BY 3M COMPANY, CP25 CAULK, CP195 COMPOSITE PANEL, FS195 WRAP/STRIP, OR PSS 7900 SERIES SYTEMS AS RECOMMENDED BY MFG. FOR PARTICULAR APPLICATIONS, OR EQUIVALENT SYSTEM AS APPROVED BY LOCAL CODE OFFICIALS.
- 23. ANY WALL, FLOOR, OR CEILING SURFACE THAT IS DISTURBED DURING THE COURSE OF THIS WORK SHALL BE REPAIRED TO EXISTING OR LIKE-NEW CONDITION.
- 24. OUTSIDE HARDWARE FOR EXHAUST FANS SHALL BE PLACED IN A LOCATION SUITABLE TO OWNER. CONTRACTOR SHALL COORDINATE PLACEMENT WITH OWNER BEFORE FINAL INSTALLATION. OUTSIDE HARDWARE FOR EXHAUST FANS AND FRESH AIR INTAKES SHOULD BE CONSTRUCTED SO AS TO BE WEATHERTIGHT AND SHOULD INCLUDE INTEGRAL INSECT SCREENS.
- CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL EQUIPMENT, DUCTWORK, ETC. TO FIT WITHIN THE SPACE ALLOWED BY ARCHITECTURAL AND STRUCTURAL CONDITIONS. CUTTING OR OTHERWISE ALTERING ANY STRUCTURAL MEMBERS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ARCHITECT.
- ANY SERVICEABLE ROOF MOUNTED MECHANICAL EQUIPMENT SHALL BE LOCATED A MINIMUM OF 10'-0" FROM THE EDGE OF THE ROOF.

	H\	VAC LEGEND
SYMBOL — SINGLE LINE	SYMBOL — DOUBLE LINE	DESCRIPTION
<b>X</b>		CELING DIFFUSER
		CEILING RETURN GRILLE
<b>─</b>		SIDEWALL SUPPLY REGISTER OR GRILLE
	<b>—</b>	SIDEWALL RETURN REGISTER OR GRILLE
AHU 1	AHU 1	EQUIPMENT DESIGNATION
(A8) 200	(A8) 200	DIFFUSER TAG: TYPE "A", NECK SIZE TO BALANCED FOR 200 CFM
<u>WL−1</u> 75	<u>WL−1</u> 75	LOUVER TAG: TYPE "WL-1", SIZE FOR 75 CFM @ 500 FPM
+D	D	DROP
+ <sub>R</sub> →	R	RISE
16x12	16x12	DUCT SIZE - RECTANGULAR
 10"ø	10"ø	DUCT SIZE - ROUND
		DUCT TRANSITION
		RETURN AIR DUCT TURNED DOWN
		RETURN AIR DUCT TURNED UP
		RECT. ELBOW WITH TURNING VANES
====		LINED DUCT
<b>~~~</b>	<del></del>	FLEXIBLE DUCT
<b>●</b> DD	● DD	DUCT SMOKE DETECTOR
FD	<b>F</b> D	FIRE DAMPER
——————————————————————————————————————	F/S	FIRE/SMOKE DAMPER
CRD	—— <b></b> CRD	CEILING RADIATION DAMPER
MOD	— мор	MOTOR OPERATED DAMPER
<del></del>	MVD	MANUAL VOLUME DAMPER
BDD	BDD	BACKDRAFT DAMPER
FC	FC	FLEXIBLE EQUIPMENT CONNECTOR
T H C	T H C	THERMOSTAT, HUMIDISTAT, CARBON DIO: WALL-MOUNTED SENSOR, OR AS NOTED
$\triangleright$	$\triangleright$	REVISION TAG (#1)
<u> </u>	<u></u>	UNDER CUT (DOOR) 1"
<u> </u>	<del></del>	CONNECT TO EXISTING

ŀ	HVAC ABBREVIATIONS
SYMBOL	DESCRIPTION
мвн	1000 BTU/HR
A/C	ABOVE CEILING
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
CD	CONDENSATE DRAIN
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE (IN. W.C.)
HP	HEAT PUMP UNIT OR HORSEPOWER
CU	CONDENSING UNIT
OA	OUTSIDE AIR
WL	WALL LOUVER
FC	FLEXIBLE EQUIPMENT CONNECTOR
IDU	DUCTED OR DUCTLESS MINI-SPLIT FAN COIL
ODU	MINI-SPLIT HEAT PUMP OR CONDENSING UNIT
FNU	FURNACE UNIT
DN	DOWN
CTE	CONNECT TO EXISTING

	SPLIT SYSTEM HVAC UNIT SCHEDULE												
TAG		SUPPLY	MAX. OA	E.S.P.	HT. PUMP CLG. CAP.			HT. PUMP HTG. CAP.		AUX. ELEC. HEATERS	ELECTRICAL	OPERATING WEIGHT	NOTES
1710		AIR CFM	CFM	(IWG)	(MBH)	(SEER)		47°(MBH)	(HSPF)	KW/STAGES	LLLOTTIONE	(LBS)	NOTES
CU/AHU-1	CARRIER 24ACC424/FB4CNF024	800	_	0.4	18.9/23.5	14.0	_	_	_	I	SEE DIV. 16	127/157	1,2,3,4,5
CU/AHU-2	CARRIER 24ACC424/FB4CNF024	800	_	0.4	18.9/23.5	14.0	_	_	_	ı	SEE DIV. 16	127/157	1,2,3,4,5
HP/AHU-3	CARRIER 25HCE418/FB4CNF018	600	_	0.4	12.8/17.8	14.0	9.64	17.8	8.2	5/1	SEE DIV. 16	127/157	1,2,3,4,5

### NOTES:

- UNITS TO BE CONTROLLED BY SEVEN DAY PROGRAMMABLE THERMOSTATS, LOCATED AS SHOWN ON PLANS.
- REFRIGERANT FOR NEW EQUIPMENT SHALL BE R-410A. NO R-22 IS ALLOWED. BASIS OF DESIGN IS CARRIER. EQUIVALENT ALTERNATES BY TRANE ARE ACCEPTABLE
- 4. PROVIDE w/ CONDENSATE PUMP. 5. OA PROVIDED BY EXISTING AHU.

	EXHAUST FAN SCHEDULE												
TAG	BASIS OF DESIGN	CFM	E.S.P.	WEIGHT (LBS)	SONES	OPER. HP	MOTOR HP	PWR	CONTROL	NOTES			
REF-1,2	GREENHECK G-143-VG	1,000	0.25	45	5.6	0.08	1/4	SEE DIV. 16	OCC. SENSOR	1,2,3,4,5			
EF-3	GREENHECK CSP-A200	100	0.25	23	0.3	0.01	1/12	SEE DIV. 16	WALL SWITCH	1,2,3,4			
EF-4	GREENHECK CSP-A200	200	0.25	23	0.3	0.01	1/12	SEE DIV. 16	INTERLOCKED w/ LIGHTS	1,2,3,4			
REF-5	GREENHECK GB-180	1,150	0.25	84	4.1	0.1	1/4	SEE DIV. 16	OCC. SENSOR	1,2,3,4,5			
REF-6	GREENHECK G-143-VG	750	0.25	45	4.1	0.06	1/4	SEE DIV. 16	WALL SWITCH	1,2,3,4			

- 1. OUTSIDE HARDWARE FOR EXHAUST FANS SHOULD BE CONSTRUCTED SO AS TO BE WEATHERTIGHT.
- SPEED CONTROLLER MOUNTED ABOVE ACCESSIBLE CEILING. BACKDRAFT DAMPER
- 4. VIBRATION ISOLATORS 5. PROVIDE AND COORDINATE w/ ELECTRICAL CONTRACTOR FOR INSTALLATION OF OCCUPANCY SENSOR. MOUNT IN CENTRAL LOCATION.

	AIR DISTRIBUTION EQUIPMENT SCHEDULE	
TAG	DESCRIPTION	NOTES
А	STEEL SQUARE CONE DIFFUSER, FIXED AIR PATTERN, 4—WAY THROW, ROUND NECK, SIZED AS SHOWN, WHITE, LAY—IN FRAME, PRICE SCD.	1,2,3
В	STEEL DOUBLE DEFLECTION SUPPLY GRILLE, ADJUSTABLE PATTERN, 3/4" SPACING BETWEEN BLADES, SIZE AS SHOWN, FRONT BLADES PARALLEL TO SHORT DIMENSION, O.B. DAMPER WHEN DUCT MOUNTED, PRICE 520.	1,2,3
С	STEEL 45° DEFLECTION RETURN GRILLE, 3/4" SPACING BETWEEN BLADES, SIZE AS SHOWN, O.B. DAMPER WHEN DUCT MOUNTED. PRICE 530.	4

- VERIFY MOUNTING TYPE WITH ARCHITECTURAL RCP. SUPPLY DIFFUSERS AND GRILLES SHALL NOT COME SUPPLIED WITH VOLUME DAMPERS. MANUAL VOLUME
- DAMPERS SHALL BE INSTALLED AT BRANCH TAKE-OFFS NEAR TRUNK (SEE DETAIL SHEET).
- BACK INSULATION SHALL BE INCLUDED ON ALL SUPPLY DIFFUSERS AND GRILLES. 4. PROVIDE FULL SIZE LINED PLENUM, INTERIOR PAINTED FLAT BLACK.

	ELECTRIC WALL HEATER SCHEDULE												
TAG	TAG BASIS OF DESIGN HEATING OUTPUT (WATTS) FAN CFM TYPE BASE UNIT WT. (LBS) POWER APPLICATION ROUGH-IN DIMENSIONS (W X H X D) NOTES												
EUH-1,2	MARKEL 3320	1,500	175	RECESSED WALL	26	SEE DIV. 16	JANITOR	14-3/16" X 19-7/16" X 4"	1,2,3				
EUH-3	MARKEL 3320	1,500	175	RECESSED WALL	26	SEE DIV. 16	RESTROOM	14-3/16" X 19-7/16" X 4"	1,2,3				
EUH-4	MARKEL 3320	1,500	175	RECESSED WALL	26	SEE DIV. 16	LAUNDRY	14-3/16" X 19-7/16" X 4"	1,2,3				

## NOTES:

- BUILT-IN THERMOSTAT FOR CONTROL.
- RECESSED LOW WALL MOUNT. WATTAGE SELECTED AT 208 V.

GAS UNIT HEATER SCHEDULE											
TAG	BASIS OF DESIGN	CFM	MOTOR HP	THERMAL EFFICIENCY (%)	NAT'L GAS INPUT (MBH)	BASE UNIT WT. (LBS)	POWER	APPLICATION	NOTES		
GUH-3,4,5,7	REZNOR UDAP-30	456	0.02	82	30	54	SEE DIV. 16	LOCKER ROOM	1,2,3,4,5		
GUH-1,2,6	REZNOR UDAP-100	1,345	1/30	83	100	96	SEE DIV. 16	SHOWER ROOM	1,2,3,4,5		

- CEILING HUNG. ALUMINIZED STEEL HEAT EXCHANGER.
- NATURAL GAS FIRED.
- WALL THERMOSTAT. 5. 4" VERTICAL FLUE KIT.

	WALL LOUVER SCHEDULE										
TAG	BASIS OF DESIGN	CFM	WIDTH	HEIGHT	FREE AREA (SQFT)	COLOR	APPLICATION	NOTES			
WL-1,2	RUSKIN ELF-445DX	1,000	24	36	2.5	ARCH	INTAKE	2,3,4,6			
WL-3	RUSKIN ELF-445DX	100	12	12	0.3	ARCH	EXHAUST	1,2,5,6			
WL-4	RUSKIN ELF-445DX	1,150	24	36	2.8	ARCH	INTAKE	2,3,4,6			
WL-5,6	RUSKIN ELF-445DX	750	24	24	1.8	ARCH	INTAKE	2,3,4,6			
WL-7	RUSKIN ELF-445DX	150	18	12	0.6	ARCH	INTAKE	2,3,4,6			

- 1. BACKDRAFT DAMPER
- INSECT SCREEN
- EXPANDED METAL SCREEN ON INTERIOR 4. PROVIDE w/ MOTOR OPERATED DAMPER, INTERLOCK w/ ASSOCIATED ROOF MOUNTED EXHAUST FAN

WL-8 | RUSKIN ELF-445DX | 200 | 18 | 12 | 0.6 | ARCH | INTAKE

5. PROVIDE FULL-SIZE LINED PLENUM 6. COORDINATE w/ ARCHITECT FOR COLOR PREFERENCE

TAG BA	ASIS OF DESIGN	CFM	ESP	PINTS/ DAY	NOTES
DHM-1,2 A	PRILAIRE 1870	226	0.4	130	1-5

CONTRACT.

- MOUNT UNIT HIGH IN SPACE CEILING.
- SUSPEND UNIT IN SPACE w/ UNISTRUT AND THREADED RODS
- 3. PROVIDE MANUFACTURER'S WALL MOUNTED SPACE SENSOR/CONTROLLER w/ LCD SCREEN
- 4. EXTEND 3/4" CONDENSATE DRAIN LINE IN WALL DOWN TO GRADE. 5. PROVIDE HARD LINE ELECTRICAL ACCESSORY. DO NOT PROVIDE ELECTRICAL CORD OPTION.

# SITE OF WORK EXAMINATION

THESE DRAWINGS WERE COMPILED BY THE ARCHITECT FROM THE OWNER'S RECORD DRAWINGS AND FROM ON-SITE OBSERVATIONS TO INDICATE THE BUILDING ARRANGEMENT. ALL CONTRACTORS SUBMITTING PROPOSALS FOR THIS WORK SHALL FIRST EXAMINE THE PREMISES AND ALL CONDITIONS THEREIN. ALL PROPOSALS SHALL TAKE INTO

CONSIDERATION ALL SUCH CONDITIONS AS MAY AFFECT THE WORK UNDER THIS

WHERE DRAWINGS ARE DIMENSIONED, IT IS FOR BIDDING PURPOSES ONLY. CONTRACTORS SHALL MEASURE ALL EXISTING WORK AT THE PREMISES AND VERIFY ALL DIMENSIONS NEEDED TO PROPERLY INTERFACE IMPROVEMENTS WITH ALL EXISTING ELEMENTS WHICH ARE TO REMAIN.

Designer/Contractor:



Construction Site: Mechanical Systems List Quantity System Type & Description

Split System Heat Pump

Climate Zone: Project Type:

> 2 CU/AHU-1, CU/AHU-2 (Single Zone): Cooling: 1 each - Split System, Capacity = 24 kBtu/h, Air-Cooled Condenser Proposed Efficiency = 14.00 SEER, Required Efficiency: 13.00 SEER Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method): Passes

Owner/Agent:

Addition

FAN 1 Supply, Constant Volume, 800 CFM, 0.3 motor nameplate hp 1 HP/AHU-3 (Single Zone):

Heating Mode: Capacity = 18 kBtu/h,
Proposed Efficiency = 8.20 HSPF, Required Efficiency = 7.70 HSPF
Cooling Mode: Capacity = 18 kBtu/h, Cooling Mode: Capacity = 18 kBtu/h,
Proposed Efficiency = 14.00 SEER, Required Efficiency: 13.00 SEER
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes

FAN 1 Supply, Constant Volume, 800 CFM, 0.3 motor nameplate hp 3 GUH-1, GUH-2, GUH-6 (Unknown w/ PerimeterSystem): Heating: 1 each - Unit Heater, Propane, Capacity = 100 kBtu/h Proposed Efficiency = 82.00% Ec, Required Efficiency: 80.00 % Ec Fan System: FAN SYSTEM 2 -- Compliance (Motor nameplate HP method): Passes

FAN 2 Supply, Constant Volume, 1300 CFM, 0.3 motor nameplate hp 4 GUH-3, GUH-4, GUH-5, GUH-7 (Unknown w/ PerimeterSystem): Heating: 1 each - Unit Heater, Propane, Capacity = 30 kBtu/h Proposed Efficiency = 82.00% Ec, Required Efficiency: 80.00 % Ec Fan System: FAN SYSTEM 2 -- Compliance (Motor nameplate HP method): Passes

FAN 2 Supply, Constant Volume, 1300 CFM, 0.3 motor nameplate hp

Gas Storage Water Heater, Capacity: 119 gallons, Input Rating: 75 kBtu/h w/ Circulation Pump

**Mechanical Compliance Statement** 

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2007) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checkl

ARCHITECTURE

Marietta, GA 30060-6958

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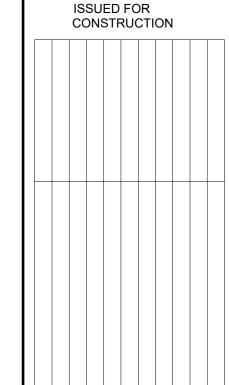
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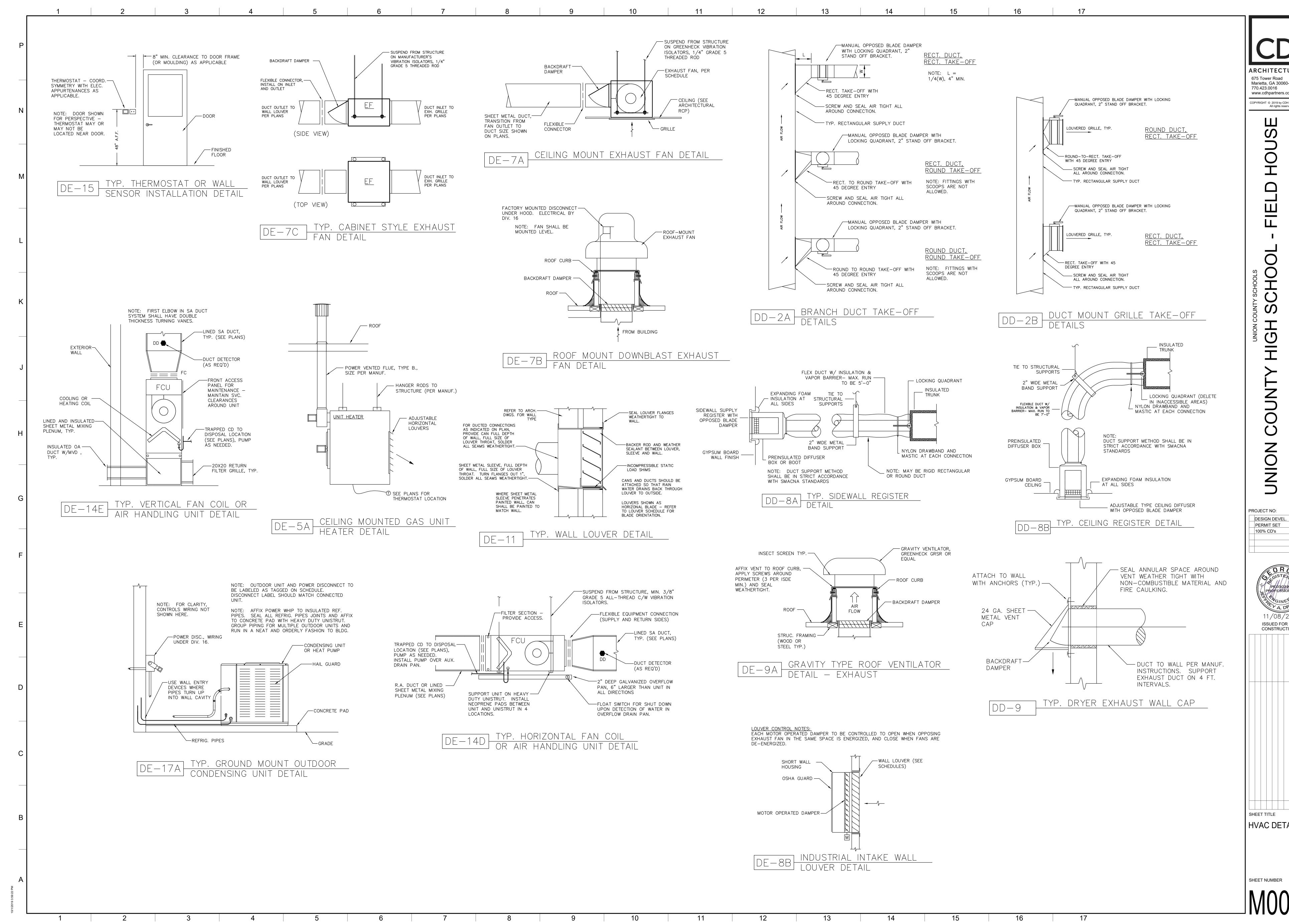
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**LEGEND** 



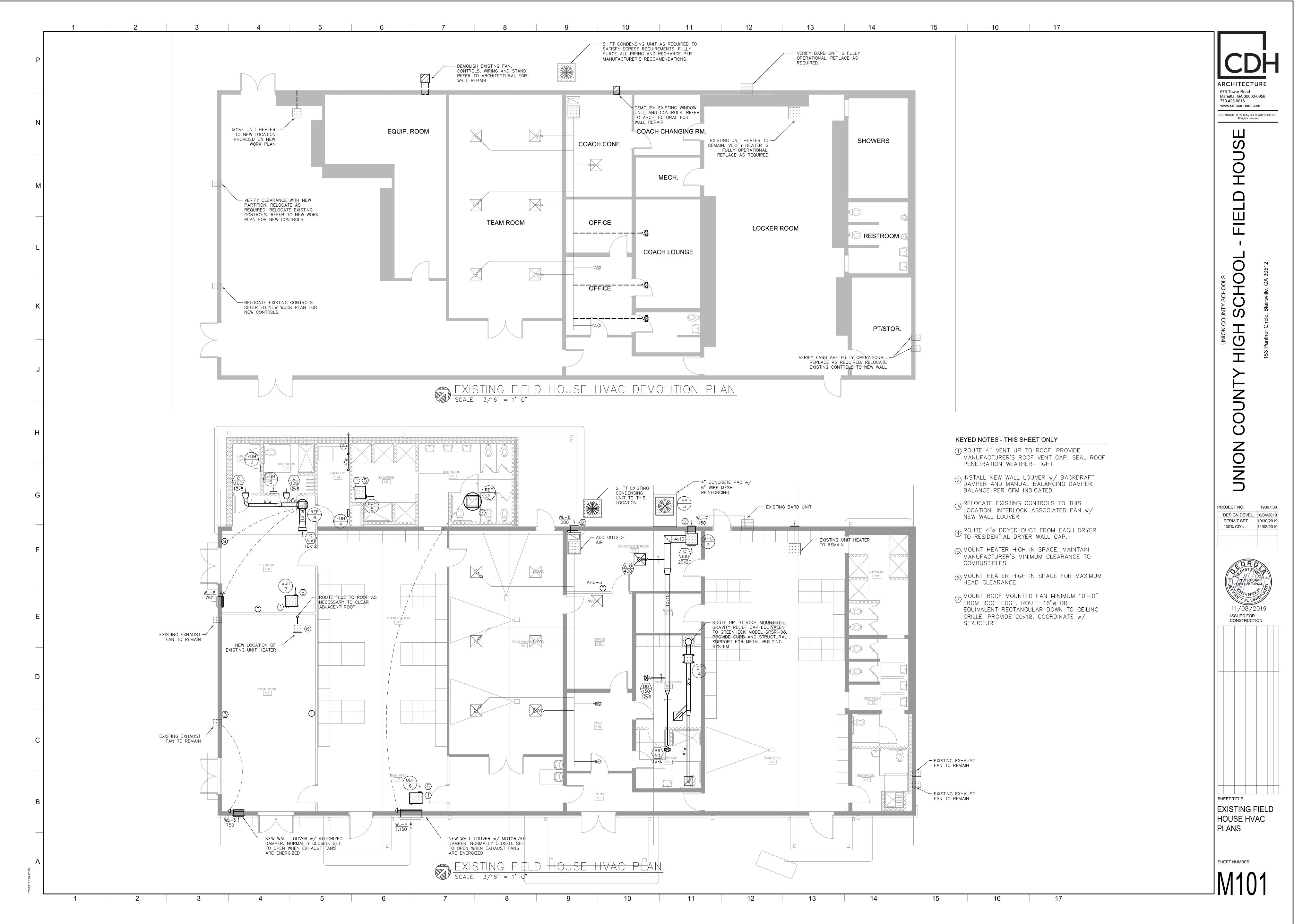


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KEYED NOTES - THIS SHEET ONLY PENETRATION NEW WALL LOUVER W/ MOTORIZED —/ DAMPER. NORMALLY CLOSED. SET TO CEILING. OPEN WHEN EXHAUST FAN IS ENERGIZED (TYPICAL) 4" CONCRETE PAD W/
6" WRE MESH
REINFORCING NEW FIELD HOUSE HVAC PLAN

SCALE: 3/16" = 1'-0"

- (1) ROUTE 4" VENT UP TO ROOF. PROVIDE MANUFACTURER'S ROOF VENT CAP. SEAL ROOF
- ② MOUNT DEHUMIDIFIER HIGH IN SPACE. ROUTE CONDENSATE DOWN EXTERIOR WALL TO DISCHARGE AT GRADE, OR COORDINATE w/ PLUMBER TO PROVIDE JR SMITH 9200 P-TRAP AT LAVATORY TO RECEIVE CONDENSATE

14

15

- MOUNT HEATER HIGH IN SPACE FOR MAXIMUM HEAD CLEARANCE.
- 4 MOUNT ROOF MOUNTED FAN MINIMUM 10'-0" FROM ROOF EDGE. ROUTE 16"ø OR EQUIVALENT RECTANGULAR DOWN TO CEILING GRILLE. PROVIDE 20x18, COORDINATE w/ STRUCTURE
- AIR HANDLING UNIT ABOVE ACCESSIBLE CEILING. PROVIDE CEILING ACCESS PANEL FOR EQUIPMENT SERVICE FOR NON ACCESSIBLE

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NEW FIELD HOUSE HVAC PLAN

C.No water piping (domestic, storm, sanitary, etc., except sprinkler piping when required)

required, shields must be provided over the panels.

1.15 EQUIPMENT IDENTIFICATION

A. Equipment Identification:

shall be located above electrical switchboards and/or panel boards. When sprinklers are

1. All mechanical equipment shall be labeled with Bakelite nameplates with 2"high white

letters on a black background, securely affixed to equipment for outdoor or indoor

2. Equipment Identification numbers shall be the same as those scheduled on the design

3. Make-up Air Units.

6. Ductless Split Systems

5. Fan Coil Units.

7. Electric Heaters.

4. Condensing and/or Heat Pump Units.

furnished under Division 15 for that purpose.

E.Division 16, ELECTRICAL, provides for electrical power to any given item of equipment at

contains devices such as fans, thermostats, motorized dampers or other controls which

require other than primary voltage for their proper function, then transformers shall be

F. Voltage and phase for Division 15 equipment shall be as specified by Division 16. Division

the voltage and phase required by the primary use only. If the item of equipment

acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.

1. Silicone Firestopping Elastomeric Firestopping: Single or Multiple component silicone elastomeric compound and compatible silicone sealant.

2. Foam Firestopping Compounds: Single or Multiple component foam compound.

3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers. 4. Fiber Stuffing and Sealant Firestopping: Composite of mineral or ceramic fiber

stuffing insulation with silicone elastomer for smoke stopping. 5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.

6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain. 7. Firestop Pillows: Formed mineral fiber pillows.

# 2.10 FIRESTOPPING ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.

B. Dam Material: Permanent Mineral fiberboard or fiber matting, sheet metal, plywood or alumina silicate fire board.

C. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

# 1. Furnish UL listed products.

2. Select products with rating not less than rating of wall or floor being penetrated.

E. Non-Rated Surfaces: 1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or

ceiling plates for covering openings in occupied areas where piping is exposed. 2. For exterior wall openings below grade, furnish mechanical sealing device to continuously fill annular space between piping and cored opening or water-stop type wall sleeve.

### PART 3 EXECUTION 3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify openings are ready to receive sleeves.

C. Verify openings are ready to receive firestopping.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond. C. Install damming materials to arrest liquid material leakage.

D. Do not drill or cut structural members.

3.3 INSTALLATION - INSERTS

A. Install inserts for placement in concrete forms.

B. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches

D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

E. Where inserts are omitted, drill through concrete slab from below and provide through—bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

3.4 INSTALLATION - PIPE HANGERS AND SUPPORTS A. Install in accordance with ASME B31.1, ASME B31.5, ASME 31.9, ASTM F708, NFPA 54.

B. Support horizontal piping as scheduled.

C. Install hangers with minimum 1/2 inch space between finished covering and adjacent

D. Place hangers within 12 inches of each horizontal elbow.

E. Use hangers with 1-1/2 inch minimum vertical adjustment

F. Support vertical piping at every floor.

G. Where piping is installed in parallel and at same elevation, provide multiple pipe or

H. Support riser piping independently of connected horizontal piping.

I. Provide copper plated hangers and supports for copper piping.

J. Design hangers for pipe movement without disengagement of supported pipe.

K. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

L. Provide clearance in hangers and from structure and other equipment for installation of

insulation.

3.5 INSTALLATION - EQUIPMENT BASES AND SUPPORTS

A. Provide housekeeping pads of concrete, minimum 3-1/2 inches thick and extending 6 inches beyond supported equipment.

B. Using templates furnished with equipment, install anchor bolts, and accessories for mounting and anchoring equipment.

C. Construct supports of steel members, formed steel channel, steel pipe and fittings.

Brace and fasten with flanges bolted to structure. 3.6 INSTALLATION - FLASHING

A. Provide flexible flashing and metal counter—flashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.

B. Provide acoustical lead flashing around ducts and pipes penetrating equipment rooms

C. Provide curbs for roof installations 14 inches minimum high above roofing surface. Flash and counter-flash with sheet metal; seal watertight. Attach counter-flashing to equipment and lap base flashing on roof curbs. Flatten and solder joints.

D. Adjust storm collars tight to pipe with bolts; caulk around top edge. Use storm collars above roof jacks. Screw vertical flange section to face of curb.

3.7 INSTALLATION - SLEEVES A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping. D. Extend sleeves through floors 1 inch above finished floor level. Caulk sleeves.

E. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with stuffing insulation and caulk airtight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

F. Install chrome plated steel escutcheons at finished surfaces. 3.8 INSTALLATION - FIRESTOPPING

A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, and other items, requiring firestopping.

B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.

C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating, to uniform density and texture. D. Fire Rated Surface:

1. Seal opening at floor, wall, partition, ceiling, and roof as follows: a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element.

b. Size sleeve allowing minimum of 1 inch void between sleeve and building c. Pack void with backing material. d. Seal ends of sleeve with UL listed fire resistive silicone compound to meet fire

rating of structure penetrated. 2. Where cable tray, conduit, wireway, and piping penetrates fire rated surface, install firestopping product in accordance with manufacturer's instructions.

E. Non-Rated Surfaces: 1. Seal opening through non—fire rated wall, partition floor, ceiling, and roof opening

a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element

b. Size sleeve allowing minimum of 1 inch void between sleeve and building

c. Install type of firestopping material recommended by manufacturer.

2. Install escutcheons, floor plates, or ceiling plates where conduit or piping, penetrates non-fire rated surfaces in occupied spaces. Occupied spaces include

rooms with finished ceilings and where penetration occurs below finished ceiling.

tightened, providing watertight seal and electrical insulation.

A. Acceptable Manufacturers: Allied Tube & Conduit Corp., B-Line Systems, Midland Ross

B. Product Description: Galvanized 12 gage thick steel. With holes 1-1/2 inches on center.

A. Acceptable Manufacturers: Dow Corning Corp., Fire Trak Corp., Hilti Corp., International

Protective Coating Corp., 3M Fire Protection Products, Specified Technology Inc.

B. Product Description: Different types of products by multiple manufacturers are

2.8 FORMED STEEL CHANNEL

2.9 FIRESTOPPING

Corporation, Unistrut Corp.

3. Exterior wall openings below grade: Assemble rubber links of mechanical sealing device to size of piping and tighten in place, in accordance with manufacturer's

4. Interior partitions: Seal pipe penetrations at locations where partitions run to structure. Apply sealant to both sides of penetration to completely fill annular space between sleeve and conduit.

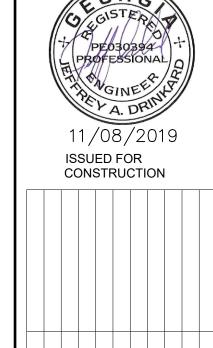
END OF SECTION

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SHEET TITLE

SHEET NUMBER

SPECIFICATIONS

SECTION 15730 - SPLIT SYSTEM HEAT PUMPS

PART 1 GENERAL 1.1 GENERAL

A. Section 15010 applies.

1.2 BASIS OF DESIGN

A. Acceptable manufacturers for products specified under this section are listed below. 1. Split System Heat Pumps: Carrier, Trane, Lennox, York, Daikin, Aaon 2. Mini—split Heat Pumps: Mitsubishi, Daikin, Trane, Carrier, LG, Fujitsu

PART 2 PRODUCTS

2.1 DUCTED SPLIT SYSTEM HEAT PUMPS

A. Equipment is scheduled on the drawings.

B. Configuration: as inidicated on the drawings.

C. General: Factory assembled and tested air cooled condensing units and heat pumps, consisting of casing, compressors, condensers, coils, condenser fans and motors, and

unit controls. D. Unit Casings: Exposed casing surfaces constructed of galvanized steel with manufacturer's standard baked enamel finish. Designed for outdoor installation and complete with weather protection for components and controls, and complete with removable panels for required access to compressors, controls, condenser fans, motors, and drives.

E. Compressor: Single and dual refrigeration circuits (per plans) with compressors, resiliently mounted, with positive lubrication, and internal motor overload protection.

F. Condenser Coil: Constructed of copper tubing mechanically bonded to aluminum fins, factory leak and pressure tested.

G. Furnish operating and safety controls including high and low pressure cutouts. Control

transformer. Furnish magnetic contactors for compressor and condenser fan motors. H. Condenser Fans and Drives: Direct drive propeller fans statically and dynamically balanced. Wired to operate with compressor. Permanently lubricated ball bearing type

motors with built—in thermal overload protection. Furnish high efficiency fan motors. 1. Controls to provide low ambient cooling, time delay relay, anti-short cycle timer,

vibration isolators on all equipment supported by structure or upper floor slabs, condenser coil guard, suction and discharge pressure gauge connections.

J. Refrigeration specialties: Furnish the following for each circuit: 1. Charge of compressor oil, Holding charge of refrigerant, Replaceable core type filter drier, liquid line sight glass and moisture indicator, shut—off valves on suction and liquid piping, liquid line solenoid valve, charging valve, oil level sight glass, crankcase

heater, hot gas muffler, pressure relief device, P—traps (as needed). K. Refrigerant: Furnish full charge of refrigerant R-410A.

L. Air Handling Unit Cabinet: 1. Panels: Constructed of galvanized steel with baked enamel finish. Access Panels: Located on both sides of unit. Furnish with duct collars on inlets and outlets. 2. Insulation: Factory applied to each surface to insulate entire cabinet. One inch thick

aluminum foil faced glass fiber with edges protected from erosion. E. Evaporator Fan: Forward curved centrifugal type, resiliently mounted with adjustable belt drive (for belt drive units) and high efficiency motor. Motor permanently lubricated with

built—in thermal overload protection. F. Evaporator Coil: Constructed of copper tubes expanded onto aluminum fins. Factory leak tested under water. Removable, PVC construction, double—sloped drain pan with piping connections on both sides.

G. Refrigeration System: Single and dual refrigeration circuits, as per plans, controlled by

factory installed thermal expansion valve. H. Electric Heating Coil: Helical nickel—chrome resistance wire coil heating elements with refractory ceramic support bushings easily accessible with automatic reset thermal cut-out, built-in contactors, galvanized steel frame, manual reset thermal cut-out, air flow proving device, load fuses.

I. Air Filters: 1 inch thick glass fiber disposable media in metal frames. 25 to 30 percent efficiency based on ASHRAE 52.1.

J. Air Handling Unit Accessories:

1. Discharge Plenum: with construction and finish matching unit casing. 2. Mounting Sub-base with construction and finish matching unit casing. 3. Vibration Isolators: Neoprene—in—shear type.

2.2 APR CONTROL DEVICE (R-410A) FOR CAPACITY CONTROL IN UNITARY SPLIT OR PACKAGED DX SYSTEMS.

A. APR Controls, as manufactured by Rawal Devices, Inc. of Woburn, MA. (800-727-6447) fax 781-933-3306) shall be installed in designated systems to provide continuous capacity modulation on the refrigeration circuits of the unit(s) for additional capacity control during part load conditions. APR Control shall be installed on lead circuit (first on/last off) in systems with multiple circuits for staging. In systems with tandem or manifold compressors. APR Control shall be installed across piping connections where the compressor's piping combine to create the single circuit.

in accordance with Rawal Devices, Inc. installation instructions or the direction of Rawal Devices, Inc. Engineers. ASHRAE refrigeration piping and Equipment Manufacturer's piping protocol must be adhered to when the APR Control is applied to split systems.

B. The APR Control is to be installed in the condensing section of the designated systems

C. Refrigeration ball valves must be installed on all connection to the APR Control device to allow isolation of the APR Control during charging and start—up of the systems to which the APR Controls are applied.

D. The APR Control is a field installed device and shall be sized by Rawal Devices, Inc. Engineers or authorized Dealer to assure proper application. Contact Rawal Devices, Inc. Engineers to confirm proper selection.

2.3 MINI-SPLIT SYSTEM HEAT PUMPS

END OF SECTION

A. Equipment is scheduled on the drawings.

B. Air cooled split system outdoor section shall be suitable for ground or rooftop installation. Unit shall consist of a hermitic reciprocating scroll or rotary compressor, an air cooled coil, propeller type blow thru outdoor fans, reversing valve, accumulator, refrigerant charge, heating mode metering device, and control box. Unit shall discharge air horizontally. Unit construction shall comply with ANSI/ASHRAE 15 and NEC. Units shall be constructed in accordance with U.L standards. Air cooled condenser coils shall be leak tested at 350 psig air pressure. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a baked enamel finish. Outdoor fans shall be direct drive propeller type, and shall discharge air horizontally. Outdoor fan motors shall be totally enclosed, single phase motors with Class B insulation and permanently lubricated sleeve bearings, and shall be protected by internal thermal overload protection. Fan blades shall be corrosion—resistant and shall be statically and dynamically balanced. Outdoor fan openings shall be equipped with PVC coated protection grille over fan and coil. Compressor shall be equipped with oil system, operating oil charge, and motor. Internal overloads shall protect the compressor from over—temperature and over—current. Scroll compressors shall also have high discharge gas temperature protection if required. Reciprocating compressors shall be equipped with crankcase heaters. Compressor assembly shall be installed on rubber vibration isolators and shall have internal spring isolation. Coil shall be constructed of aluminum fins mechanically bonded to internally enhanced, seamless copper tubes. Refrigerant circuit components shall include brass external liquid line service valve with service gage port connections, suction line service valve with service gage connection port service gage port connections on compressor suction and discharge lines with Schrader type fittings with brass caps, accumulator,

bi-fold filter drier, and pressure relief. C. Outdoor unit operating controls and safeties shall be factory selected, assembled, and tested. The minimum control functions shall include time delay restart, automatic restart on power failure, safety lockout, a time delay control sequence, high pressure and liquid line low pressure switches, and start capacitor and relay on single phase units without scroll compressors. Safeties shall include: System diagnostics, compressor motor current and temperature overload protection, high pressure relief and outdoor fan

failure protection. Unit electrical power shall be single point connection. Unit shall have high and low voltage terminal block connections. Liquid solenoid valve shall be included on heat pumps where required for excessive heights where recommended by

manufacturer. D. Indoor direct expansion fan coil units shall be complete with cooling/heating coil, fan, fan motor, piping connectors, electrical controls, microprocessor control system, and integral wall mounting bracket, mounting hardware, and thermistor interconnection cable. The unit shall be matched with outdoor unit as scheduled on drawings. Cabinet discharge and inlet grilles shall be attractively styled, high impact polystyrene. Cabinet shall be fully insulated for improved thermal and acoustic performance. Fans shall be tangential direct drive blower type with air intake and discharge. Vertical and horizontal air sweep shall be provided. Coil shall be copper tube with aluminum fins and galvanized steel tube sheets. Fins shall be bonded to the tubes by mechanical expansion. A drip pan under the coil shall have a drain connection. Condensate pan shall have internal trap and auxiliary drip pan under coil header. The units shall use Accurater piston refrigerant metering device in the indoor unit and outdoor unit liquid line service valve. Unit shall have filter track with factory supplied cleanable filters. Motors shall be open drip proof, permanently lubricated ball bearing with inherent overload protection. Fan motors shall be 3—speed. Controls shall consist of a microprocessor based control system which shall control space temperature, determine optimum fan speed, and run self diagnostics. Controls shall include a minimum of the following features: an automatic restart, timer function, temperature sensing controls, high discharge temperature shutdown, fan speed control, time delay to prevent compressor restart in less than 3 minutes, automatic heating to cooling changeover and demand defrost. Indoor coil high temperature protection shall be provided to detect excessive indoor discharge temperature when unit is in heat pump mode. All units shall have rotatable refrigerant lines for penetration through the wall using flare connections. All units shall have flare connections and line-hide devices. Units shall be provided with a condensate pump as scheduled on the drawings.

E. Control or safety devices furnished for field installation shall be installed and wired under Section 15900.

PART 3 EXECUTION 3.1 EXAMINATION

A. Verify roof curbs are installed and dimensions are as shown on shop drawings.

3.2 INSTALLATION

A. Install Work in accordance with state and local Building Inspection Department's

B. Do not place units on roof before roof curbs or mounting rails are installed.

C. Install roof mounted units on roof curb or mounting rails providing watertight enclosure to protect ductwork and utility services. Install roof curb level.

D. Install remote panels and control wiring between remote control locations and unit. Install in accordance with Section 15900.

E. Install components furnished loose for field mounting.

F. Install electrical devices downstream of contactors furnished loose for field mounting. Division 16 contractor is responsible for providing remote disconnects for all mechanical equipment under this contract. Division 16 contractor is responsible for providing and installing power wiring to terminals on all mechanical equipment.

G. Install flexible connections at supply and return ductwork connections.

H. Install condensate drain piping from drain pan to nearest floor drain or to condensate drainage system provided.

I. Furnish units fully charged with refrigerant and filled with oil.

J. Furnish initial start—up and shutdown during first year of operation, including routine servicing and checkout.

END OF SECTION

SECTION 15750 — MAJOR HVAC EQUIPMENT

PART 1 GENERAL

1.1 GENERAL A. Section 15010 applies.

1.2 BASIS OF DESIGN

 Acceptable manufacturers for products specified under this section are listed below. 1. Exhaust Fans: Greenheck, Cook, Broan, Twin City, Penbarry 2. Wall Mount Propeller Exhaust Fans: Greenheck, Cook, Twin City, Pennbarry

PART 2 PRODUCTS 2.1 EXHAUST FANS (EF)

A. General

1. Fans are scheduled on the drawings.

2. All fans shall bear the AMCA Certified Performance Rating seal and UL label. Sone ratings shall be in accordance with AMCA Bulletin 300. Fans shall have published ratings certified by AMCA Standard 210 and Class established by AMCA 2408-69. Fan BHP and RPM shall be selected to produce specified capacity when installed in system

with accessories as indicated. Fan wheels shall be statically and dynamically balanced. 3. Belt drive fan motors shall have bases which permit adjustment of belt tension, belt guards with tachometer hole for fan shaft, and variable pitch diameter sheaves. 4. Bearings for fan shafts, other than propeller type, shall have an average service life of 100,000 hours. Bearings shall be factory lubricated and shall have grease fittings for lubrication as recommended by bearing manufacturer. Grease lines shall extended

to outside of casing where fittings are inaccessible during fan run time. 5. Solid state speed controllers for direct drive fans shall be provided and wired under Division 15 for initial balancing of fan air quantity.

6. Motors shall be provided as specified in Section 15010 and shall be readily accessible. Motors 1 hp and larger shall be premium efficiency type. B. Centrifugal Roof Mounted Exhaust Fan

1. Fans shall be centrifugal belt or direct dive type. Housing shall be constructed of heavy duty aluminum mounted on a rigid frame. Shroud shall have a rolled bead and internal structural members for added strength. Install on 12" weathertight curb.

Curb assembly shall be water spray tested and proven leak—free to the satisfaction of the Owner. 2. Fan shall be backward curved centrifugal type with spun inlet venturi. Motors and centrifugal wheels shall be mounted on vibration isolators. Motors shall be isolated

from the exhaust air stream — cooling air shall be provided from a location free of

contaminants. Motors shall be readily accessible for maintenance. 3. A NEMA disconnect switch shall be factory installed and wired from the motor to the disconnect junction box. A conduit chase shall be provided for running electrical

wiring from the curb cap into the power junction box. 4. Provide backdraft damper within roof curb unless a MOD is noted otherwise.

C. Ceiling/Cabinet Type 1. Housing shall be reinforced phosphatized steel. Wheels shall be true centrifugal, forward curved in design, and shall be statically and dynamically balanced. 2. Where grilles are required, they shall be aluminum with white baked enamel

symmetrically finished appearance. Interior of housings shall be lined with dark acoustical insulation permanently attached in place. Interior of installed unit shall not be visible when grille is installed. 3. Motors shall be shaded pole type with sleeve bearings supported by one piece die

formed steel suspension brackets with rubber isolation dampers. 4. Terminal box shall be mounted in the housing with receptacle, plug and cord inside of the cabinet. All motors shall be suitably grounded. Motor and fan assembly shall be removable from installed ceiling ventilator.

5. Where duct flanges are required on one or both ends of the fan, they shall be pre—assembled to housings.

6. Backdraft dampers shall be of integral design with aluminum damper on steel spring and foam rubber seal to eliminate chatter.

7. A speed controller on direct drive fans shall be shall be mounted at the fan and factory wired or field wired under Division 15 between the fan and fan energizer 1.2 WALL MOUNT PROPELLER FANS (WEF)

A. General Description:

1. Fan arrangement shall be either supply or exhaust, see plans. 2. Sidewall mounted application.

3. Maximum continuous operating temperature 130 Fahrenheit (54.4 Celsius) 4. Each fan shall bear a permanently affixed manufacture's engraved metal nameplate

containing the model number and individual serial number

1. Material type: steel blades and hubs.

2. Securely attached to fan shaft by welding or with standard square key and set screw

3. Statically and dynamically balanced in accordance with AMCA Standard 204-05. 4. The propeller and fan inlet will be matched and shall have precise running tolerances for maximum performance and operating efficiency.

C. Motors:

1. Motor enclosures: Totally enclosed fan cooled. 2. Motors are permanently lubricated, heavy duty ball bearing type to match with the fan load and furnished at the specific voltage and phase.

3. Accessible for maintenance.

D. Shafts and Bearings: 1. Fan Shaft shall be ground and polished solid steel with an anti-corrosive coating

2. Bearing shall be cast iron pillow block with grease fittings 3. Bearings shall be selected for a minimum L10 life in excess of 100.00 hours (equivalent to L50 average life of 500,000 hours), at maximum cataloged operating

4. Bearing shall be air handling quality and 100% factory tested by bearing manufacturer 5. Fan Shaft first critical speed is at least 25 percent over maximum operating speed

E. Drive Frame: 1. Drive frame assemblies shall be galvanized steel, and bolted construction 2. Drive frame shall have formed channels and fan panels shall have prepunched mounting holes, formed flanges and a deep formed one piece inlet venturi

F. Disconnect Switches: 1. NEMA rated: 3R 2. Positive electrical shut-off

3. Wired from fan motor to junction box

1. Belts, pulleys, and keys oversized for a minimum of 150 percent of driven horsepower 2. Belt: Static free and oil resistant 3. Fully machined cast iron pulley, keyed and securely attached to the wheel and motor

4. The motor pulley shall be adjustable for final system balancing

5. Readily accessible for maintenance

H. Options/Accessories: 1. Dampers:

> a. Type: Gravity b. Prevents outside air from entering back into the building when fan is off

c. Balanced for minimal resistance to flow d. Galvanized frames with prepunched mounting holes

2. Finishes:

a. Types: Primer 3. Wall Housing:

a. Constructed of galvanized steel with heavy gauge mounting flanges and pre-punched mounting holes

b. Housing shall include OSHA approved motor guard c. Reduces installation time and provides maximum installation flexibility

4. Motor Side Guard: a. Guard type: OSHA Guard b. Protective guard completely enclose the motor and drive side of the fan

5. Weatherhood:

a. Shall shield wall opening and dampers from rain and snow

b. Material type: Galvanized c. Turndown Angle: 90 degrees

PART 3 EXECUTION 3.1 INSTALLATION

d. Screen: Birdscreen

e. Finish: Primer

A. Field coordinate power requirements with Division 16 contractor before ordering any

B. Do not place equipment on roof before roof curbs are installed. All roof-mounted equipment shall be mounted on curbs. Install roof mounted units on roof curb providing watertight enclosure to protect ductwork and utility services. Install roof curb and equipment level.

Install components furnished loose for field mounting.

Install electrical devices downstream of contactors furnished loose for field mounting. Division 16 contractor is responsible for providing remote disconnects for all mechanical equipment under this contract. Division 16 contractor is responsible for providing and installing power wiring to terminals on all mechanical equipment.

Furnish initial start—up and shutdown during first year of operation, including routine servicing and checkout.

END OF SECTION

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DESIGN DEVEL. 10/04/2019 PERMIT SET 10/30/2019 100% CD's 11/08/2019

11/08/2019

ISSUED FOR

PROJECT NO:

CONSTRUCTION

A. Normal operating filters for all systems shall be disposable pleated media type filter of a size standard for the unit(s) installed.

B. Construction phase filters shall be dry fiberglass media, double wall box panel type, of a size standard for the unit(s) installed. Only construction phase filters shall be used during construction, and normal operating filters shall be installed by contractor after final punch—out. Construction phase filters shall be checked regularly as the project progresses and changed as needed. Units shall not be run without filters.

C. For projects with DDC systems, dirty filter switches shall be installed on equipment filters to indicate, through the DDC, when these filters are dirty.

2.10 ELECTRICAL CHARACTERISTICS AND COMPONENTS A. Electrical characteristics of powered equipment are shown on the Div. 16 plans.

## PART 3 EXECUTION

A. Verify sizes of equipment connections before fabricating transitions.

B. Verify rated walls are ready for fire damper installation.

C. Verify ducts and equipment are ready for installation and accessories. D. Check location of air outlets and inlets and make necessary adjustments in position to conform to architectural features, symmetry, and lighting arrangement.

3.2 FIRE DAMPERS A. Install fire dampers at locations shown on drawings. Installation of fire dampers shall comply with SMACNA Fire, Smoke, and Radiation Damper Installation Guide for HVAC

systems. Basic installation Figure 1 2. Breakaway connections Figure 2 3. Specific Installation Figure 5 4. Damper out of wall Figure 12

B. Fire damper openings in metal stud walls shall be internally framed on four sides from vertical members for rigid support of opening with internal gypsum board liner per SMACNA installation guide or manufacturer's guidelines for installation in metal stud

Figure 15

A. Install in accordance with SMACNA Duct Construction Standards — Metal and Flexible, for pressures and seal as specified herein.

B. During construction install temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

3.4 FLEXIBLE DUCTS A. Flex duct connections shall be made with a band on inner liner and another band to

secure vapor jacket. Max length of any flexible duct section is 5'-0". Tape all loose ends with foil tape, no cloth duct tape is allowed. 3.5 FLEXIBLE EQUIPMENT CONNECTIONS

A. Install on inlets and outlets of all powered equipment prior to any duct hangers. Manufacturer shall provide with equipment where option is available. Install connecting duct in a straight line with equipment connection, and prevent flexible connection from being in tension while equipment is running.

3.6 DUCT SMOKE DETECTORS

# A. Shall be provided and wired by Division 16, installed in duct by Division 15.

A. Prevent passage of unfiltered air around filters by installing felt, rubber, or neoprene

B. Install filter gage static pressure tips upstream and downstream of filters. Mount filter gages on outside of filter housing or filter plenum, in accessible position. Adjust and

### 3.8 INSPECTION PANELS

A. Install inspection panels at the following locations and as indicated on drawings: 1. Before and after each automatic control damper.

2. Before and after each fire, smoke, and/or combination fire and smoke damper. B. Access Door Sizes: Install minimum 12 x 12 inch size for hand access, 18 x 18 in. size

for shoulder access. Review locations prior to fabrication. 1. Mark access doors for fire and smoke dampers on outside surface, with minimum 2 in. high letters reading: FIRE/SMOKE DAMPER, SMOKE DAMPER, OR FIRE DAMPER. 3.9 AIR DIFFUSERS AND GRILLES

A. Install balancing dampers for diffusers and grilles at branch take—off from main trunk, no dampers allowed on-board diffusers or grilles unless explicitly specified on plans. Do not install manual volume dampers next to grilles unless required by field conditions.

B. Do not locate air registers, diffusers or grilles in floors of toilet or bathing rooms. C. Paint ductwork, cans, and plenums visible behind air outlets and inlets matte black.

D. Install safety screen where fan inlet or outlet is exposed.

END OF SECTION

SECTION 15950 - TESTING, ADJUSTING, AND BALANCING

## PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: 1. Testing, adjusting, and balancing of air systems.

B. The Contractor shall obtain the services of an independent test, adjustment, and balance (TAB) agency to test, adjust, and balance:

1. Each supply, return, exhaust, relief, and outdoor air distribution systems.

C. The Contractor and the TAB Agency shall review the proposed system installations and determine all measuring and balancing devices required for proper test and balance of the systems. These shall include, but not be limited to, manual air volume balancing dampers, etc. The Contractor shall be responsible for providing these in the locations recommended by the TAB Agency, in addition to any shown on the drawings. These devices shall be provided under the Contract.

D. Instruments used for testing and balancing shall have been calibrated within a period of six months of the time of the testing and balancing and such instruments shall be checked for accuracy prior to the start of the work. Submit verification for certification to the Architect and the Owner.

E. Perform Work in accordance with AABC National Standards, latest addition. TAB shall include all equipment and distribution systems and shall be reported, as a minimum, on forms as published by the AABC, NEBB, or approved equal. Report shall include a diagram(s) of each system showing all devices in the system.

F. The TAB Agency shall, unless approved by the Owner, be an AABC or NEBB member and the work shall be done by an AABC or NEBB certified TAB Technician and Commissioning Agent.

G. All corrections required by the report shall be executed by the Contractor to the satisfaction of the Owner, Architect, Engineer, and TAB agency. All costs associated with testing and balancing, as well as costs of any necessary re—testing, shall be borne by the

H. Testing and Balancing Agency shall be kept informed of any major changes made to the systems during construction, and shall be provided with a complete set of contract documents, as—built drawings, approved submittals, applicable specification sections, addenda and change orders.

### 1.2 SUBMITTALS

A. Draft Reports: Submit for review prior to final acceptance of Project B. Test Reports: Submit prior to final acceptance of Project and for inclusion in operating and maintenance manuals. Assemble in soft cover, letter size, 3—ring binder, with table of contents page and tabs, and cover identification. Include reduced scale drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat

# PART 2 EXECUTION

locations.

2.1 EXAMINATION A. Before starting work, verify systems are complete and operable.

B. The TAB Agency shall check refrigerant superheat settings.

C. The TAB Agency shall test drain pans for proper drainage under operating conditions.

D. Report defects, deficiencies, or abnormal conditions in mechanical systems preventing system balance to Owner, Architect, and Engineer.

E. Beginning of work means acceptance of existing conditions.

2.2INSTALLATION TOLERANCES

A. Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 10 percent of design for return and exhaust systems.

B. Air Outlets and Inlets: Adjust to within plus or minus 10 percent of design.

2.3AIR SYSTEM PROCEDURE

A. Examine all air handling systems to see that they are free from obstructions that may prevent proper balancing of system.

B. Ensure that all dampers, grilles, and registers are open or in normal positions, that moving equipment is lubricated, filters are installed and clean, and perform other inspection and maintenance activities to ensure that the operation of the system is as specified.

C. Adjust air handling and distribution systems to deliver design supply, return, and exhaust air

quantities within previously stated tolerances. D. Make air quantity measurements in ducts by traverse of entire cross sectional area of duct.

E. Measure air quantities at air inlets and outlets.

F. Use volume control devices to regulate air quantities only to extent those adjustments do not create objectionable air motion or sound levels. Change volume using dampers mounted in ducts, not dampers on ceiling diffusers. Leave dampers on ceiling diffusers open for seasonal adjustment by Owner.

G. Vary total system air quantities by adjustment of fan speeds. Vary branch air quantities by damper regulation. H. Measure static air pressure conditions on air supply units, including filter and coil pressure

drops, and total pressure across fan. Allow for pressure drop equivalent to 50 percent loading of filters.

I. Adjust automatic outside air, return air, and exhaust air dampers for design conditions. J. Measure temperature conditions across outside air, return air, and exhaust air dampers to

check leakage. K. At modulating damper locations, take measurements and balance at extreme conditions. L. The TAB Agency shall check all the systems operating together to ensure that the air

conditioning spaces are under an overall positive pressure. 2.4FIELD QUALITY CONTROL

A. Verify recorded data represents actually measured or observed conditions. B. Permanently mark settings of valves, dampers, and other adjustment devices. Set and lock memory stops.

END OF SECTION

**ARCHITECTURE** 

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PROJECT NO:

DESIGN DEVEL. 10/04/2019

PERMIT SET 10/30/2019

100% CD's 11/08/2019

11/08/2019 ISSUED FOR CONSTRUCTION

# **GENERAL PLUMBING NOTES**

PRICING AND START OF DEMOLITION.

- 1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST VERSION OF THE INTERNATIONAL PLUMBING CODE (IPC) AND ALL APPLICABLE LOCAL CODES AND ORDINANCES.
- PLUMBING PLANS WERE NOT AVAILABLE AT TIME OF DESIGN. PIPING SHOWN BASED ON LIMITED SITE INVESTIGATION AND BEST ASSUMPTION. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO
- SCOPE OF WORK INCLUDES SALVAGING AND REUSING EXISTING SINK FIXTURES, WHERE POSSIBLE. REFER TO ARCHITECTURAL SHEET A100 FOR SPECIAL INSTRUCTIONS.
- EXPOSED FIXTURES: CHROME PLATED BRASS AND COPPER TUBING WITH THREADED PLATED BRASS
- JOIN PIPES OF DISSIMILAR METALS WITH DIELECTRIC UNIONS OR SIMILAR ISOLATING DEVICES, DO NOT DIRECTLY CONNECT TO PIPES OF DISSIMILAR METALS.
- ROUTE PIPING PARALLEL TO BUILDING STRUCTURE AND MAINTAIN GRADIENT.
- INSTALL PIPING TO MAINTAIN HEADROOM. GROUP PIPING TO CONSERVE SPACE. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
- INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
- PROVIDE CLEARANCE IN HANGERS AND FROM STRUCTURE AND OTHER EQUIPMENT FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
- 10. SLEEVE PIPE PASSING THROUGH PARTITIONS, WALLS AND FLOORS.
- 11. INSTALL IDENTIFICATION ON PIPING SYSTEMS OR INSULATION COVERINGS INCLUDING UNDERGROUND PIPING PER PIPE LABELING DETAIL. LABELS SHALL INCLUDE NAME OF FLUID INSIDE PIPE ALONG WITH DIRECTIONAL FLOW ARROWS. ALL GAS PIPING SHALL BE PAINTED YELLOW WITH PIPE MARKERS APPLIED AFTER PAINTING. NON-STEEL GAS PIPING SHALL HAVE LABELS APPLIED NOT EXCEEDING 5 FEET APART.
- 12. PROTECT PIPING SYSTEMS FROM ENTRY OF FOREIGN MATERIALS BY TEMPORARY COVERS, COMPLETING SECTIONS OF THE WORK, AND ISOLATING PARTS OF COMPLETED SYSTEM.
- 13. CONTRACTOR SHALL SECURE AND PAY FOR ALL FEES AND PERMITS REQUIRED TO ACCOMPLISH THE
- 14. BEFORE COMMENCEMENT OF WORK, CONTRACTOR SHALL VERIFY EXACT LOCATIONS, ELEVATIONS, AND CHARACTERISTICS OF UTILITIES AND PIPING AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES. PIPE SLOPES SHOULD BE VERIFIED TO ENSURE PROPER ELEVATIONS ARE OBTAINED AT CONNECTION POINTS.
- 15. EXACT LOCATIONS AND MOUNTING HEIGHTS OF PLUMBING FIXTURES SHALL BE OBTAINED FROM ARCHITECTURAL DRAWINGS.
- 16. CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH UTILITY COMPANIES FOR SERVICE AND CONNECTIONS AND SHALL PAY FOR ALL FEES, CHARGES, PERMITS, AND METERS.
- 17. ALL SANITARY DRAINAGE PIPES 2" AND SMALLER SHALL BE SLOPED AT 1/4" PER FOOT MINIMUM, AND ALL SANITARY DRAINAGE PIPES 3" AND LARGER SHALL BE SLOPED AT 1/8" PER FOOT
- 18. ALL PIPING ABOVE GRADE SHALL BE PROPERLY SUPPORTED FROM THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR BE SUPPORTED FROM CEILING TILES.
- 19. LOCATE ALL SECTIONAL OR MAIN CONTROL VALVES WITHIN 1'-0" OF ACCESS PANELS, CELING TILES, OR OTHER POINTS OF ACCESS.
- 20. PLUMBING AND FIRE PROTECTION PIPING IS NOT TO BE INSTALLED IN ELECTRICAL ROOMS, CLOSETS, TELEPHONE ROOMS, OR ELEVATOR EQUIPMENT ROOMS EXCEPT PIPING SERVING THAT ROOM.
- 21. WATER PIPING ROUTED ABOVE CEILING AND IN EXTERIOR WALLS SHALL BE ROUTED ON HEATED
- SIDE (UNDERSIDE) OF CEILING INSULATION AND HEATED SIDE (INSIDE) OF WALL INSULATION.
- 22. TOPS OF ALL FLOOR DRAINS AND FLOOR CLEANOUTS SHALL BE LEVEL WITH FINISHED FLOOR AT
- INSTALLATION LOCATION TO PREVENT TRIP HAZARDS FLOORS SHALL SLOPE TO FLOOR DRAINS.
- 23. PRIME ALL FLOOR DRAIN AND INDIRECT DRAIN TRAPS WITH WATER BASED TRAP PRIMERS AS SHOWN ON PLANS. PRO-VENT TRAP GUARDS MAY BE USED IN LIEU OF WATER BASED TRAP PRIMERS WHERE THE AUTHORITY HAVING JURISDICTION ALLOWS.
- 24. ALL VENT AND FLUE OUTLETS SHALL BE 10'-0" MINIMUM FROM ANY FRESH AIR INTAKE.
- 25. DURING THE PROGRESS OF THE PROJECT, MAINTAIN AN ACCURATE RECORD OF ALL CHANGES MADE IN THE PLUMBING SYSTEMS. THE RECORD DRAWING SHALL SHOW CHANGES IN MANUFACTURER (WITH NUMBERS AND TRADE NAMES), MATERIALS, SIZES, LOCATIONS, AND HOOK-UP POINTS. AS-BUILTS SHALL BE GIVEN TO OWNER'S CONSTRUCTION MANAGER AT COMPLETION OF JOB.
- 26. UPON COMPLETION OF THIS JOB, CONTRACTOR SHALL INSPECT ALL EXPOSED PORTIONS OF THE PLUMBING INSTALLATION AND COMPLETELY REMOVE ALL EXPOSED LABELS, SOIL, MARKINGS, AND FOREIGN MATERIAL EXCEPT PRODUCT LABELS AND THOSE REQUIRED BY THESE PLANS.
- 27. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL PLUMBING EQUIPMENT WITH THE ELECTRICAL DRAWINGS AND THE ELECTRICAL CONTRACTOR, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN THEREIN. PLUMBING CONTRACTOR SHALL WIRE AND START ALL ELECTRICAL PLUMBING EQUIPMENT, ELECTRICAL CONTRACTOR SHALL PROVIDE WIRING, CONDUIT, BREAKERS, AND OTHER APPROPRIATE ELECTRICAL EQUIPMENT.
- 28. ALL PLUMBING EQUIPMENT, PIPING, INSULATION, ETC. INSTALLED IN HVAC PLENUM SPACES SHALL MEET CODE REQUIREMENTS FOR SMOKE AND COMBUSTIBILITY.
- 29. ALL PIPE PENETRATIONS OF FIRE OR SMOKE RATED ASSEMBLIES SHALL BE FIRE STOPPED AS REQUIRED TO RESTORE ASSEMBLY TO ORIGINAL INTEGRITY. FIRE BARRIER PRODUCTS SHALL BE AS MANUFACTURED BY 3M COMPANY, CP25 CAULK, CS195 COMPOSITE PANEL, FS195 WRAP/SHRINK, OR PSS 7900 SERIES SYSTEMS AS RECOMMENDED BY MANUFACTURER FOR PARTICULAR APPLICATIONS, OR EQUIVALENT SYSTEM AS APPROVED BY LOCAL CODE OFFICIALS.
- 30. ALL VENT THRU ROOF PENETRATIONS SHALL BE ROUTED TO TERMINATE AT THE LEAST VISIBLE LOCATION FROM THE ENTRY VIEW.
- CONTRACTOR SHALL PROVIDE ALL NECESSARY PRODUCTS AND MATERIALS FOR A COMPLETE PLUMBING SYSTEM.
- 32. EQUIPMENT AND PIPING LOCATIONS AND ROUTING SHOWN ARE DIAGRAMMATIC AND INTENDED TO SHOW THE INTENT OF THE DESIGN. COORDINATE FINAL LOCATIONS AND PIPE ROUTING WITH ARCHITECTURAL PLANS AND FIELD CONDITIONS.
- 33. HEAT TRACE ALL DOMESTIC PIPING IN NON-HEATED SPACES WITH 7 W/LF

PIPING LABEL COLOR GUIDE

SYMBOL	DESCRIPTION	ABBREVIATION
	ABOVE FINISHED CEILING	AFC
	ABOVE FINISHED FLOOR	AFF
	BELOW COUNTER	B/C
	BELOW FINISHED FLOOR	BFF
	BELOW GRADE	B/G
	DOMESTIC COLD WATER PIPING	CW
	DOMESTIC HOT WATER PIPING	HW
	VENT PIPE	V
	SANITARY SOIL	SS
_ <u>-</u>	VENT THROUGH ROOF OR WALL	VTR OR VTW
—ф—	FLOOR CLEANOUT	FCO
	FLOOR DRAIN	FD
	FLOOR SINK (INDIRECT DRAIN)	FS
1	WALL CLEANOUT	wco
	CLEANOUT TO GRADE	COTG
	P-TRAP	
	PRESSURE REDUCING VALVE	PRV
-MTM-	BACKFLOW PREVENTER	BP
<u>—</u> Ķ—	BALL VALVE	
——  ——	UNION	
	PRESSURE REDUCING VALVE	
E	BLIND FLANGE/CAP	
<del></del>	PIPING CONNECTION ON TOP	
Ŷ	PIPING CONNECTION ON BOTTOM	
	ELBOW TURNED DOWN	
	ELBOW TURNED UP	
	THERMOMETER	
lack	CONNECT TO EXISTING	CTE

PLUMBING LEGEND

# SITE OF WORK EXAMINATION

THESE DRAWINGS WERE COMPILED BY THE ARCHITECT FROM THE OWNER'S RECORD DRAWINGS AND FROM ON-SITE OBSERVATIONS TO INDICATE THE BUILDING ARRANGEMENT. ALL CONTRACTORS SUBMITTING PROPOSALS FOR THIS WORK SHALL FIRST EXAMINE THE PREMISES AND ALL CONDITIONS THEREIN. ALL PROPOSALS SHALL TAKE INTO

CONSIDERATION ALL SUCH CONDITIONS AS MAY AFFECT THE WORK UNDER THIS

WHERE DRAWINGS ARE DIMENSIONED, IT IS FOR BIDDING PURPOSES ONLY. CONTRACTORS
SHALL MEASURE ALL EXISTING WORK AT THE PREMISES AND VERIFY ALL DIMENSIONS
NEEDED TO PROPERLY INTERFACE IMPROVEMENTS WITH ALL EXISTING ELEMENTS WHICH
ARE TO REMAIN.

		F	PLUM	BING	FIXT	URE SCHEDULE
TAG	FIXTURE			ECTION S	1	SPECIFICATION
LAV	WALL MOUNT LAVATORY, PUBLIC (0.5 GPM)	S.S. 2"	V. 2"	C.W.	H.W.	<ul> <li>KOHLER K-2035, ADA COMPLIANT, WHITE VITREOUS CHINA WALL MOUNT SINK, REAR CENTER DRAIN WITH OVERFLOW, 2 HOLE DRILLING ON 4" CENTERS, 21-1/4" L-R X 18-1/8" F-B X 7-1/4" DEEP, INCLUDE WALL CARRIER.</li> <li>KOHLER 8998 P-TRAP</li> <li>MOEN 8884 METERED FAUCET, ADA.</li> <li>MCGUIRE 151 BRASS STRAINER.</li> <li>MCGUIRE BV-2165 QUARTER TURN BALL VALVE STOPS AND SUPPLIES</li> <li>WATTS LFUSG-B UNDER SINK GUARDIAN THERMOSTATIC MIXING VAVLE</li> </ul>
HWC	FLUSH VALVE WATER CLOSET, ADA.	3"	3"	1"		HANDICAPPED WATER CLOSET SHALL BE FLOOR MOUNTED FLUSH VALVE TYPE WITH ELONGATED BOWL AND 1.28 GPF FLUSH. SEAT SHALL BE COMMERCIAL TYPE WITH OPEN FRONT. INCLUDE ALL REQUIRED HARDWARE FOR A COMPLETE INSTALLATION.      FIXTURE: KOHLER K-4405      SEAT: KOHLER K-4670      FLUSH VALVE: SLOAN, CROWN MODEL 111-1.28
WC	FLUSH VALVE WATER CLOSET	3"	3"	1"		<ul> <li>WATER CLOSET SHALL BE FLOOR MOUNTED FLUSH VALVE TYPE WITH ELONGATED BOWL AND 1.28 GPF FLUSH VALVE. SEAT SHALL BE COMMERCIAL TYPE WITH OPEN FRONT. INCLUDE ALL REQUIRED HARDWARE FOR A COMPLETE INSTALLATION.</li> <li>FIXTURE: KOHLER K-4406</li> <li>SEAT: KOHLER K-4670</li> <li>FLUSH VALVE: SLOAN, CROWN MODEL 111-1.28</li> </ul>
МОР	JANITOR'S MOP SINK	3"	2"	1/2"	1/2"	SERVICE/JANITOR'S SINK SHALL BE BOTTOM-DRAINING, FLOOR-MOUNTED, 12" DEEP, CORNER-TYPE, FAUCET w/ 1/2" DIAMETER RUBBER HOSE, HOSE CLAMP, INTEGRAL RIM GUARD, STAINLESS STEEL SPLASH PANELS, AND INCLUDE ALL PARTS FOR COMPLETE INSTALLATION.  FIXTURE: STERN WILLIAMS CRS-2210  FAUCET: STERN WILLIAMS T-10-VB  WATTS LFUSG-B UNDER SINK GUARDIAN THERMOSTATIC MIXING VALVE, MOUNTED ABOVE CEILING  PROVIDE ACCESSIBLE INLINE CHECK VALVES ON HOT AND COLD SUPPLY PIPES.
SH	STANDARD TILE SHOWER	3"	2"	1/2"	1/2"	SHOWER TILED BY OTHERS SPEAKMAN SHOWER VALVE & HEAD VALVE: SM-10000-P HEAD: S-2460 ALTERNATES BY MOEN, DELTA. VERIFY ALTERNATES MEET ALL ASSE TEMPERATURE CONTROL REQUIREMENTS PROVIDE ROUND FLOOR DRAIN OR LINEAR. COORDINATE FINAL INSTALLATION w/ ARCHITECTURAL
HSH	ADA TILE SHOWER	3"	2"	1/2"	1/2"	SHOWER TO BE TILED—IN BY OTHERS.     INCLUDE MOEN 8342 THREE FUNCTION COMMERCIAL SHOWER SYSTEM. MOUNT PER ADA REQUIREMENTS.     INCLUDE ALL GRAB BARS AND FOLDABLE SEATING FOR ADA COMPLIANCE. REFER TO ARCH PLANS FOR ACCESSORIES.
EDF	DRINKING FOUNTAIN	2"	2"	1/2"		DUAL HEIGHT, TWO STATION, ELKAY LZSTLWSLK w/ EZH20 BOTTLE FILLING STATION     MCQUIRE BV—2165 QUARTER TURN BALL VALVE STOPS AND SUPPLIES
NFWH	WALL HYDRANT			1/2"		<ul> <li>NON-FREEZE TYPE</li> <li>WOODFORD, MODEL B65</li> <li>PROVIDE KEYED BOX</li> </ul>
WB	WALL BOX			1/2"	1/2"	CLOTHES WASHER BOX BASIS OF DESIGN IS OATEY. CONNECT PER MANUFACTURER'S INSTRUCTIONS.
WCO/GCO/ FCO	WALL/GRADE/ FLOOR CLEANOUT					SEE PLUMBING SPECIFICATIONS 15100 - 2.10
FD/FS	FLOOR DRAIN	3"				SEE PLUMBING SPECIFICATIONS 15100 - 2.9
HD	HUB DRAIN	3"		1/2"		CONDENSATE DRAIN HUB DRAIN     SEE PLUMBING DETAILS

15

DOMESTIC WATER HEATER SCHEDULE											
TAG	BASIS OF DESIGN	STORAGE CAPACITY (GAL.)	TOTAL INPUT (BTUH)	THERMAL EFFIC. (%)	100 F RECOV. (GPH)	STORAGE TEMP. (DEG. F)	GAS CONN. (IN.)	WATER CONN. (IN.)	SHIP WEIGHT (LBS.)	POWER	NOTES
GWH-1	RHEEM HE119-199	119	199,000	95	229	140	3/4"	3"	405	SEE DIV. 16	1,2
GWH-2	RHEEM HE119-199	119	199,000	95	229	140	3/4"	3"	405	SEE DIV. 16	1,2

SEE PLUMBING DETAILS

- MOUNTING: FLOOR MOUNT ON STAND AND INCLUDE DRAIN PAN. ROUTE T.P.R TO DRAIN PAN AND DRAIN TO HUB DRAIN. PROVIDE CONDENSATE NEUTRALIZERS ON CONDENSING GAS WATER HEATERS.
- PROVIDE w/ EXPANSION TANK

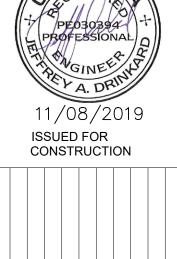
DOI	MESTIC HOT W	ATER	CIRCL	ILATIN	G PU	MP S	CHED	ULE
TAG	BASIS OF DESIGN	FLOW (GPM)	HEAD (FT)	HORSE POWER	HW CONN. (IN.)	CW CONN. (IN.)	PWR	NOTES
CP 1	B&G ECOCIRC 19-14 VARIO	2	12'	VAR	3/4	3/4	115/1	1,2

# NOTES

- 1. CONTROL: PUMP ENABLED/DISABLED BY PROGRAMMABLE 7-DAY A WEEK TIME CLOCK. DURING OCCUPIED BLDG. HOURS, PUMP SHALL NOT RUN UNTIL SUCH TIME THAT AQUASTAT CALLS FOR PUMP TO RUN. PUMP SHALL STOP RUNNING WHEN
- AQUASTAT IS SATISFIED. 2. SPECIFICATION: PUMP SHALL BE ELECTRICALLY COMMUTATED MOTOR TYPE, DESIGNED AND GUARANTEED FOR QUIET OPERATION. PUMP SHALL BE SUITABLE FOR 225 DEG. F AND 150 PSI WORKING PRESSURE, AND SHALL HAVE A SHAFTLESS WET ROTOR CERAMIC BALL BEARING STYLE LUBROCATED BY THE CIRCULATING FLUID. PUMP SHALL HAVE LEAD FREE BRONZE BODY. MOTORS SHALL BE NON- OVERLOADING AT ANY POINT ON THE PUMP CURVE. INCLUDE OPTIONAL CHECK VALVE WHERE AVAILABLE.

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PROJECT NO: DESIGN DEVEL. 10/04/2019 PERMIT SET 10/30/2019 100% CD's 11/08/2019



SHEET TITLE

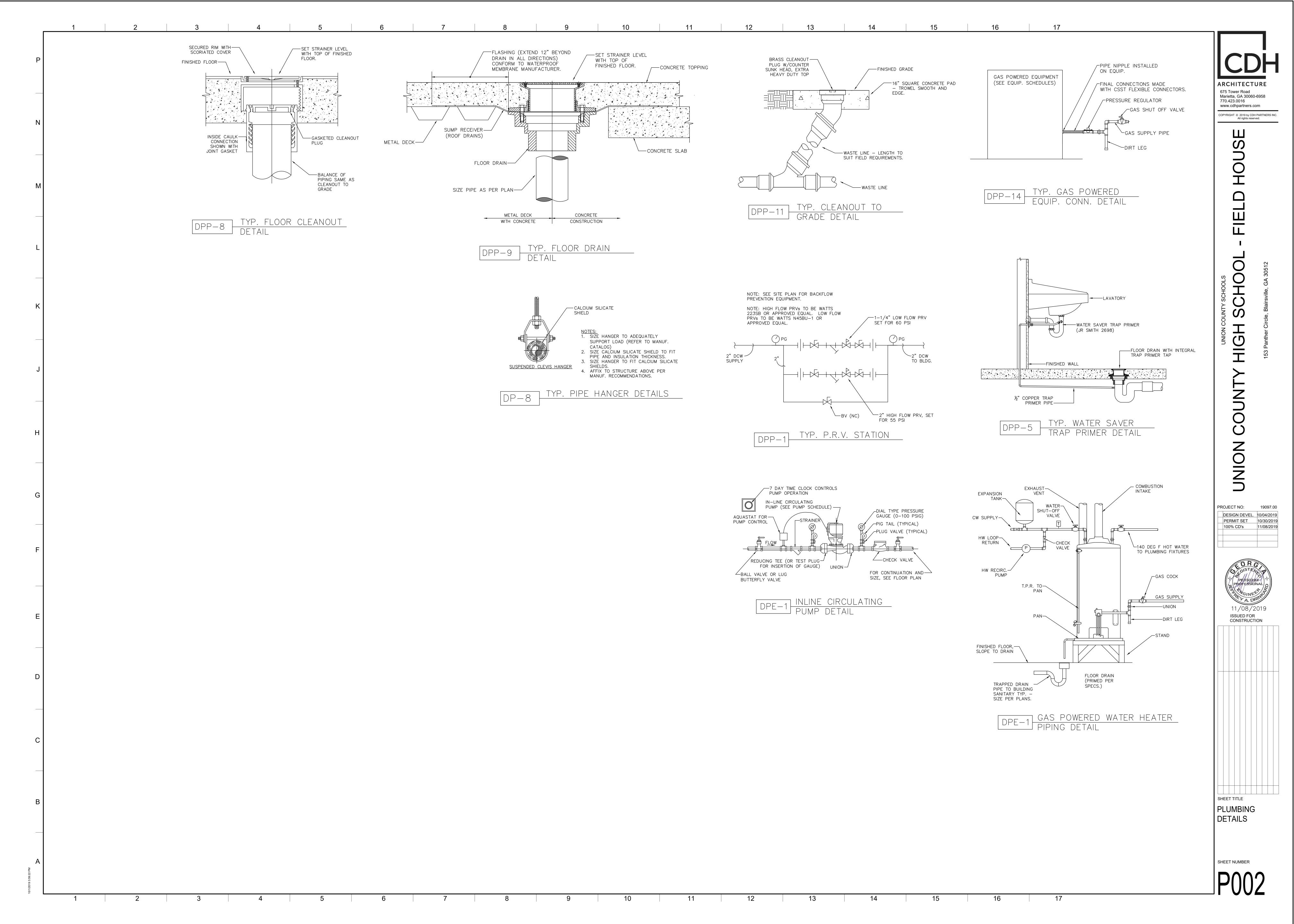
LEGEND

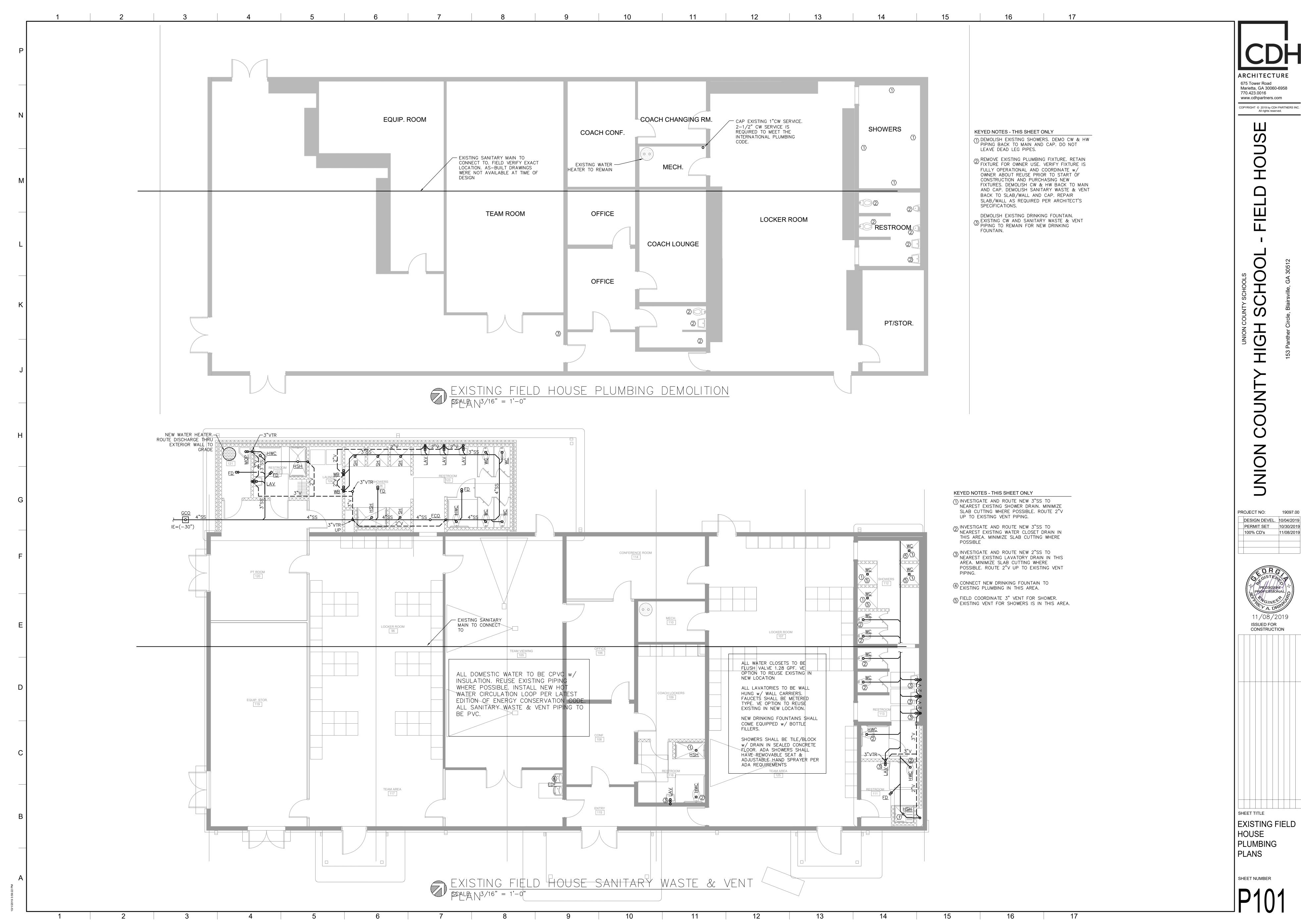
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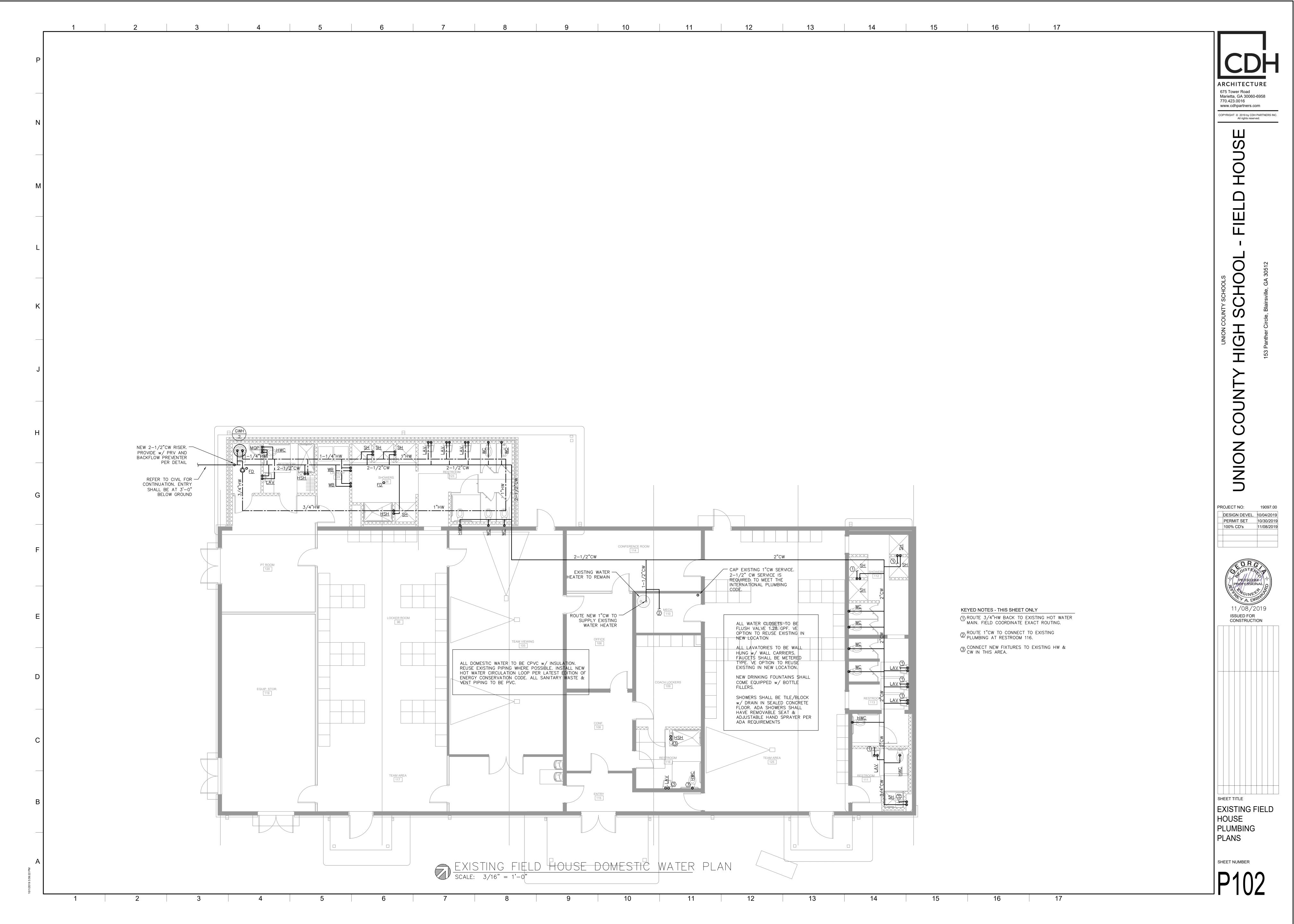
DOMESTIC COLD WATER  SAFETY GREEN  DOMESTIC HOT WATER  SAFETY GREEN  WHITE  LABEL TEXT SHOULD MATCH FLUIDS IN TABLE, ANI INCLUDE FLOW ARROWS INDICATING DIRECTION OF FLOW.  3. IF FLUIDS MAY FLOW IN TWO DIRECTIONS, ARROWS INDICATE SUCH.	
DOMESTIC HOT WATER GREEN WHITE INDICATE SUCH.	
FIRE PROTECTION FLUIDS  SAFETY RED  WHITE  4. APPLY LABELS SO THAT THEY ARE EASILY READAL OCCUPANTS OR EMPLOYEES. FOR EASE OF READIL LABELS SHOULD BE APPLIED ON BOTTOM OF PIPES	۱G,
ARE ABOVE OCCUPANT LEVEL, ON TOP OF PIPES BELOW OCCUPANT LEVEL, AND ON SIDE OF PIPES	HAT ARE
SIZE OF LEGEND LETTERS  AT OR NEAR OCCUPANT LEVEL.  5. FOR PIPES SMALLER THAN 3/4", USE PERMANENTI	Υ.
PIPE OR PIPE COVERING OUTER DIAM. (IN.)  LENGTH OF SIZE OF LETTERS COLOR FIELD (IN.)  SIZE OF LETTERS (IN.)  ENGRAVED LABELS AFFIXED TO PIPES.  APPLY LABELS NEAR VALVES, BRANCHES, WHERE IN DIRECTION OCCURS, AT ENTRY AND RE-ENTRY THRU WALLS, FLOORS, ROOFS, AND ON STRAIGHT	A CHANGE POINTS SEGMENTS
3/4" TO 1-1/4" 8" 1/2" WITH SPACING BETWEEN LABELS THAT ALLOWS FOR INDENTIFICATION.	
7. PIPING SYSTEMS CONVEYING GASEOUS CONTENTS STATEMENTS OF THE PROPERTY OF THE	E LABEL
2-1/2" TO 6"  12"  1-1/4"  8. NATURAL AND PROPANE GAS LABELS ON NON-STIPPING SHALL BE APPLIED AT INTERVALS NOTE EX	ΈL
8" TO 10"  24"  2-1/2"  5 FEET.  9. THESE LABELING GUIDELINES DO NOT APPLY TO M  GAS AND VACUUM SYSTEMS FOR THESE TYPES (	

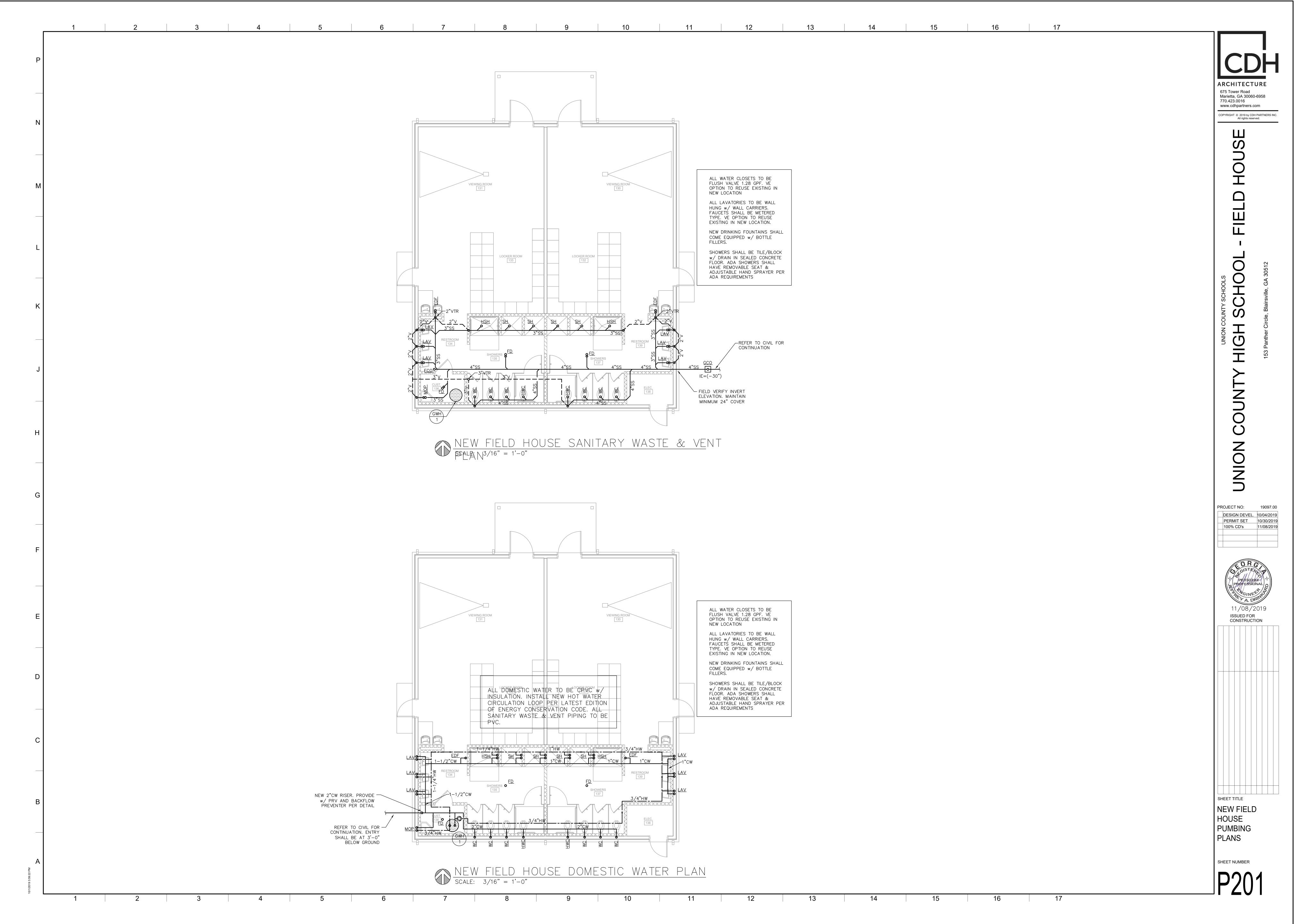
1. IF AN EXISTING PIPE LABELING/MARKING SCHEME IS USED IN THE FACILITY, MATCH EXISTING SCHEME IN LIEU OF

SYSTEMS, REFER TO THE LOCAL CODE OFFICIALS' LATEST











SECTION 15100 - PIPING AND ACCESSORIES

PART 1 GENERAL

SECTION 15080 - PLUMBING INSULATION

through—bolt with recessed square steel plate and nut recessed into and grouted flush

3.4 INSTALLATION - PIPING SYSTEMS

b. Domestic Cold Water: 0 to 100 deg F, with 2-degree scale divisions

B. Liquid-In-Glass Thermometers Description: ASTM E 1.

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between new and existing piping with noncorrosive leak detection fluid or other approved method.

check pipe for leakage.

inches

1/2

3/4

1-1/4

1-1/2

2-1/2

8

8

8

GAS PIPE HANGER SPACING

MAXIMUM MAXIMUM MINIMUM MAXIMUM

SPACING SPACING HANGER HANGER

6

1. Where leakage is detected, shut off gas supply until necessary repairs are complete.

COPPER STEEL

DIAMETER DIAMETER

Inches Inches

3/8 3/8

3/8 3/8

3/8 3/8

3/8 3/8

3/4

9 | 3/8 | 3/8

10 | 3/8 | 3/8

10 | 1/2 | 1/2

10 | 1/2 | 1/2

10 | 1/2 | 5/8

10 | 1/2 | 5/8

10 1/2

8 8 10 1/2 3/4

PART 1 GENERAL 1.1 GENERAL

A. Section 15010 is applicable.

SECTION 15401 - PLUMBING FIXTURES

PART 2 PRODUCTS

2.1 BASIS OF DESIGN

A. Fixture and accessory brands and model numbers shown below are intended to establish minimum acceptable quality. Models deemed by the engineer to be of inferior quality as compared to the Basis of Design will not be accepted. Equivalent fixtures and

accessories by the manufacturers noted below are acceptable unless noted otherwise. 3. Fixtures: Toto, Kohler, Crane, American Standard

4. Sinks: Just, Moen, Kohler, Advance Tabco, Elkay, Toto

5. Faucets: Toto, Delta, Kohler, Zurn, Symmons, Moen 6. Supplies: Brasscraft, McGuire, ProFlo, Franklin Brass

7. Water Closet Seats: Kohler, Toto, American Standard, Proflo, Bemis, Beneke

8. Drinking Fountains: Elkay, Kohler 9. Fixture Carriers: J.R. Smith, Zurn, Josam

10. Floor drains: Watts, J.R. Smith, Josam, Zurn 11. Indirect drains: Watts, J.R. Smith, Josam, Zurn 12. Cleanouts: Watts, J.R. Smith, Josam, Zurn, Wade

13. Hose Bibbs: Woodford, Chicago, T&S Brass 14. Wall Hydrants: Josam, Woodford, Smith 15. Clinical sinks: Kohler, American Standard

PART 3 PLUMBING FIXUTURES:

3.1 SEE FIXTURE SCHEDULE

PART 4 EXECUTION 4.1 INSTALLATION

A. Verify adjacent construction is ready to receive rough—in work of this section. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough in and installation. If discrepancies exist between millwork sizes and fixtures specified, contact Engineer for direction.

B. All fixtures shall be installed straight, level, and plumb. When three or more of the same fixture are installed adjacent to each other, use equal spacing between fixtures.

C. All fixtures and equipment shall be installed with all accessories required for a complete and fully functional installation, regardless of whether all equipment and accessories are listed on the plans or in the specifications.

D. All vitreous china fixtures shall be bright white in color unless otherwise noted. Faucets shall be polished chrome unless otherwise noted. If these colors are unavailable, contact Engineer for approved alternatives.

E. Install each fixture with chrome plated rigid or flexible supplies with screwdriver stops, reducers, and escutcheons. All water and drain piping exposed to view shall be chrome

plated. Piping underneath counters with closing doors need not be chrome plated.

F. All handicapped fixtures shall be installed according to ADA and local code requirements. All handicapped drains shall be covered.

G. All floors where floor drains are installed shall slope to drain, minimum 2%. This contractor shall coordinate with the applicable trades to ensure that the proper slope

H. Prime all floor drains. Where accessible, prime drain by water—saver trap primer from adjacent lavatory. Otherwise prime floor drain using water—valve type primer from

domestic water supply. In lieu of water—based trap primers, mechanical trap quards may be used where AHJ allows. I. All pressure operated fixtures and equipment shall be furnished with water stops.

Adjust stops or valves for intended water flow rate to fixtures without splashing, noise,

J. All hand washing fixtures shall have a delivered water temperature limit of 110 degrees F unless specified otherwise. This may be accomplished with a tempering valve at each device to maintain delivered temperature below 110 F. See plans for location of tempering valves as applicable.

END OF SECTION

**ARCHITECTURE** 

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PROJECT NO: DESIGN DEVEL. 10/04/2019 PERMIT SET 10/30/2019 100% CD's 11/08/2019 11/08/2019 ISSUED FOR CONSTRUCTION

SHEET TITLE

PLUMBING

**SPECIFICATIONS** 

675 Tower Road

770.423.0016

Marietta, GA 30060-6958

www.cdhpartners.com

SHEET NUMBER

ELECTRICAL LEGEND | | FLUORESCENT TROFFER, TYPE AS NOTED 18" AFF OR AS NOTED, NEMA 5-20R WEATHER PROOF DUPLEX RECEPTACLE PROVIDE WITH EMERGENCY BALLAST 18" AFF OR AS NOTED, NEMA 5-20R DUPLEX RECEPTACLE LUORESCENT TROFFER, TYPE AS NOTED ABOVE COUNTER OR AS NOTED, NEMA 5-20R QUAD RECEPTACLE PROVIDE WITH EMERGENCY BALLAST 18" AFF OR AS NOTED, NEMA 5-20R DUPLEX RECEPTACLE RECESSED CAN FIXTURE, TYPE AS NOTED 18" AFF OR AS NOTED, NEMA 5-20R RECESSED CAN FIXTURE, TYPE AS NOTED SPECIAL PURPOSE RECEPTACLE PROVIDE WITH EMERGENCY BALLAST 18" AFF OR AS NOTED, SEE SCHEDULE DUPLEX RECEPTACLE, MOUNTED FLUSH IN FLOOR FLUORESCENT STRIP FIXTURE PROVIDE BRASS COVER, NEMA 5-20R DUPLEX RECEPTACLE, MOUNTED FLUSH IN CEILING WALL MOUNTED FIXTURE, TYPE AS NOTED NEMA 5-20R PENDANT FIXTURE, TYPE AS NOTED WALL / CEILING MOUNTED JUNCTION BOX PENDANT FIXTURE, TYPE AS NOTED JNFUSED DISCONNECT SWITCH PROVIDE WITH EMERGENCY BALLAST RATING/POLES/NEMA RATING TRACK LIGHT FIXTURE, TYPE AS NOTED RATING/POLES/NEMA RATING/FUSE SIZE EMERGENCY LIGHT EXIT/EMERGENCY LIGHT COMBINATION UTILITY GRADE METER ○ ○ ○ CEILING MOUNTED EXIT SIGN TRANSIENT VOLTAGE SURGE SUPPRESSOR TELEPHONE OUTLET, PROVIDE 4" BOX +⊗ +⊗ + + WALL MOUNTED EXIT SIGN SINGLE GANG PLASTER RING, 3/4" C ABOVE CEILING DATA OUTLET, PROVIDE 4" BOX SINGLE POLE SWITCH, 44" AFF SINGLE GANG PLASTER RING, 3/4" C ABOVE CEILING TWO SINGLE POLE SWITCHES GANGED TOGETHER TELEVISION/CABLE OUTLET FOR INNER/OUTER CONTROL OF LAMPS, 44" AFF THREE SINGLE POLE SWITCHES GANGED TOGETHER DATA OUTLET, PROVIDE 4" BOX FLUSH IN FLOOR, 3/4" C ABOVE CEILING TELEPHONE OUTLET, PROVIDE 4" BOX THREE WAY SWITCH, 44" AFF FLUSH IN FLOOR, 3/4" C ABOVE CEILING TWO THREE WAY SWITCHES GANGED TOGETHER DOOR HOLD-OPEN DEVICE FOR INNER/OUTER CONTROL OF LAMPS, 44" AFF FOUR WAY SWITCH, 44" AFF TRANSFORMER, SEE ONE LINE WALL BOX DIMMER 1000W UNLESS NOTED DIFFERENTLY SPEAKER STROBE 85" CENTER WEATHER PROOF SWITCH, 44" AFF HORN 85" CENTER MOTOR RATED SWITCH, 44" AFF OR AS NOTED PULL STATION FIRE ALARM STROBE, MIN 75 CANDELA COMBINATION SWITCH AND OCCUPANCY SENSOR, 44" AFF CEILING / WALL MOUNT 85" CENTER DUCT MOUNTED SMOKE DETECTOR DIGITAL TIMER SWITCH, 44" AFF CEILING MOUNTED OCCUPANCY SENSOR WALL MOUNTED OCCUPANCY SENSOR, 44" AFF HEAT DETECTOR TIME CLOCK TAMPER SWITCH LIGHTING CONTACTOR FLOW SWITCH RACEWAY CONCEALED IN WALL OR ABOVE CEILING PHOTO CELL B" CONE SPEAKER IN CEILING RACEWAY EXPOSED C TO PROVIDE BLACK SPEAKER 8" CONE SPEAKER IN WALL RACEWAY CONCEALED IN FLOOR SLAB, BELOW SLAB OR GRADE EC TO PROVIDE BLACK SPEAKER BELOW SLAB OR GRADE, OR UNDER RAISED ACCESS FLOOR VOLUME CONTROL DENOTES CONDUIT TURNING UP IN PLAN VIEW PLYWOOD EQUIPMENT BACKBOARD DENOTES CONDUIT TURNING DOWN IN PLAN VIEW 4'X8' UNLESS NOTED OTHERWISE CLOSED CIRCUIT TELEVISION CAMERA STUB UP

(NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS AND ARE USED AS APPLICABLE TO THIS PROJECT)

SHORT CIRCUIT AVAILABLE CURRENT

COAXIAL CABLE OUTLET

		ABB	REVIATIONS		
A, AMPS A/C	AMPERES AIR CONDITIONER	FLA	FULL LOAD AMPERES	NO	NORMALLY OPEN, NUMBER
AC	ALTERNATING CURRENT	GND	GROUND	NTS	NOT TO SCALE
AF	AMPERE FRAME	GALV GRS	GALVANIZED GALVANIZED RIGID STEEL	PNL	PANELBOARD
AFF	ABOVE FINISHED FLOOR	GRS GFCI	GROUND FAULT	PVC	POLYVINYL CHLORIDE
AFG	ABOVE FINISHED GRADE	GFCI	CIRCUIT INTERRUPTER	RGS	RIGID GALVANIZED
AIC	AMPERE	051			STEEL CONDUIT
<i>7</i> O	INTERRUPTING CURRENT	GFI	GROUND FAULT INTERRUPTER	RMC	RIGID METALLIC
AL	ALUMINUM	HD	HEAT DETECTOR		CONDUIT (GALVANIZED)
ANSI	AMERICAN NATIONAL	HP	HORSEPOWER	RMS	ROOT-MEAN-SQUARE
	STANDARDS INSTITUTE	IMC	INTERMEDIATE METAL CONDUIT	RNC	RIGID NON-METALLIC
AWG	AMERICAN WIRE GAUGE	ISC	INTERRUPTING SHORT CIRCUIT		CONDUIT
BC	BARE COPPER	IG	ISOLATED GROUND	SCA	SHORT CIRCUIT
BKBD	BACKBOARD	INST	INSTANTANEOUS		AVAILABLE
C	CONDUIT	JB	JUNCTION BOX	SWBD	SWITCHBOARD
CB	CIRCUIT BREAKER	KAIC	KILO (THOUSAND) AMPERES	SWGR	SWITCHGEAR
CKT	CIRCUIT		INTERRUPTING CAPACITY	TBD	TO BE DETERMINED
CU	COPPER	KCMIL	KILO (THOUSAND)	TCP	TEMPERATURE CONTROL
DIST	DISTRIBUTION		CIRCULAR MILS		PANEL
DN DIS	DOWN	KV	KILO (THOUSAND) VOLTS	TD	TIME DELAY
DP	DISTRIBUTION PANEL	KVA	KILO (THOUSAND)	TEL	TELEPHONE
DWG	DRAWING	12147	VOLT-AMPERES	TVSS	TRANSIENT VOLTAGE
EB	ENCASED BURIAL	KW	KILO (THOUSAND) WATTS		SURGE SUPPRESSION
EC	EMPTY CONDUIT	KWH LFMC	KILO (THOUSAND) WATT-HOURS	TYP	TYPICAL
EEW	ENERGIZED ELECTRICAL WORK	LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT	UG	UNDERGROUND
EGC	EQUIPMENT GROUNDING	MCB	MAIN CIRCUIT BREAKER	UL	UNDERWRITER'S LABORATORIE
	CONDUCTOR	MCM	THOUSAND CIRCULAR MILS	UON	UNLESS OTHERWISE
ELR	END-OF-LINE RESISTOR	MCCB	MOLDED CASE		UNDERGROUND PULLBOX
EWC	ELECTRIC WATER COOLER	MLO	MAIN LUGS ONLY	٧	VOLTS
<e></e>	EXISTING	N	NEUTRAL	VA	VOLT-AMPERES
<er></er>	EXISTING TO REMAIN	NEC	NATIONAL ELECTRICAL	VFD	VARIABLE
<ex></ex>	EXISTING		CODE		FREQUENCY DRIVE
FA	FIRE ALARM	NESC	NATIONAL ELECTRICAL	WH	WATER HEATER
FAA	FIRE ALARM ANNUNCIATOR		SAFETY CODE	WP	WEATHERPROOF
FACP	FIRE ALARM CONTROL PANEL	NIC	NOT IN CONTRACT	WT	WATERTIGHT
		NL	NIGHT LIGHT	XFMR	TRANSFORMER

# **ELECTRICAL SPECIFICATIONS:**

- GENERAL: Furnish all labor, equipment, and materials necessary for a complete installation of electrical wiring. The drawings indicate diagrammatically the extent, general character, and the approximate location of the work to be performed. Omissions of details of work, mounting hardware, fittings, J-boxes, outlet boxes, pull boxes, supports, connectors, accessories, and/or adaptors, which are evidently necessary to carry out the intent of the drawings and specifications, shall be provided. Connect all electrical equipment, whether furnished by Electrical Contractor or by others, and whether shown on plans or not. Install and connect all starters furnished by this contractor or others. Furnish, install, and connect disconnects and safety switches for all electrical equipment whether furnished by this contractor or others and where required by NEC. Before installing raceways for motors, appliances, HV AC equipment, and/or other equipment provided by others, verify locations and arrange raceways accordingly. Verify all door swings with architectural plans before roughing in light switches. Where no raceway sizes or wire sizes are shown, install as required by NEC. Verify power and connection requirements for all equipment before installation. Wire as required by equipment manufacturer and in compliance with the NEC. Obtain MOCP and MCA information from actual equipment being installed and circuit accordingly. All circuit breakers supplying HVAC equipment shall be HACR type. All work shall comply with applicable laws of the community and with the NEC. Obtain and pay for all permits required. Obtain approval from all agencies and authorities having jurisdiction for all work indicated on plans and in specifications. After completion of the work,
- submit a certificate of final inspection and approval from the local Electrical Inspector and local Fire Department Authorities, certifying that the installation complies with all regulations governing the same. All materials shall be new and UL listed. Execute all work in a workmanlike manner so as to present a neat and mechanical appearance when completed. COORDINATION: Coordinate work so as to conform to the progress of the work of the other trades, and complete the entire installation as soon as the condition of the building permits. Some safety disconnect switches may be provided by the Mechanical Contractor but installed and connected by the Electrical Contractor. This
- work shall be coordinated by the Electrical Contractor. INTERFERENCE: In the event that interferences or conflicts develop, the Architect shall decide which equipment shall be relocated, at no cost to owner, regardless of which equipment was first installed. CUTTING AND PATCHING: Provide cutting and patching, under the supervision of the General Contractor, as required for electrical work. Coordinate with other trades as work progresses so cutting and patching will not be required or is kept at a minimum.
- SUBMITTALS: Within twenty (20) days after award of contract, submit six (6) copies of manufacturer's drawings to the Architect for review of the following items: Panelboards, disconnect switches, transient voltage surge suppressors, light fixtures, lighting controls, and fire alarm system (complete with plan showing wiring/conduit). TESTING: Upon completion of the work, conduct a thorough test in the Engineer's presence, and show the entire system to be in perfect working condition

GUARANTEE: Guarantee that all work executed under these specifications and plans will be free from defects of

- workmanship and materials for a period of one (1) year from date of final acceptance of this work. Promptly repair, replace, or otherwise make good, upon notification, any defect becoming apparent during this period, at no cost to Owner. TEMPORARY SYSTEMS: The Electrical Contractor shall be responsible for furnishing and installing equipment and materials necessary for providing electrical power where needed for the construction of the project in accordance with all OSHA regulations.
- SITE VISIT: Before submitting a bid, visit the site, and verify all existing conditions. Make such adjustments to work as required by the actual conditions encountered. SERVICE ENTRANCE: It shall be the responsibility of the Contractor to verify that the location, arrangement, voltage, phase, and connections to the utility service, as well as the required metering equipment, are coordinated with, and in accordance with, the requirements of the local power company. If the requirements are at variance with these Drawings or Specifications, the contract price shall include any additional cost necessary to meet those requirements, without extra cost to the Owner, after the contract is entered into. Notify the Architect of any changes required before proceeding with work. Any charges by the utility company for the
- electrical service to the facility shall be included in the bid price. CONDUIT PENETRATIONS: Where conduits and other electrical equipment raceways pass through fire partitions, fire walls, or floors, provide a U.L. Listed penetration for an effective barrier against the spread of fire, smoke, and gases, to maintain the fire rating of the wall which has been penetrated. Where exterior walls or floors are penetrated, provide complete weatherproofing of the penetration. Furnish roof flashing for all conduit or
- equipment which penetrates the roof. LIGHT FIXTURES: It shall be the responsibility of the contractor to verify the exact ceiling type, type of fixture mounting and trim, and recessing depth of all recessed fixtures, prior to purchasing any fixtures. Regardless of manufacturer part numbers identified in the Light Fixture Schedule on the plans, it shall be the contractor's responsibility to verify the proper operating voltage of light fixtures, according to what is indicated on the plans, prior to purchasing any fixtures. Equivalent fixture substitutes by Lithonia, Cooper Lighting, and Hubbell will be accepted. Provide lamps for all fixtures. Lamps shall be manufactured by GE, Osrarn-Sylvania, or Phillips. Fluorescent ballasts shall be high frequency electronic type by Magnetic Triad, Lutron, Osrarn-Sylvania or Motorola and shall have a 5 year warranty. BF shall be greater than .9, THD shall be less than 20%, CF greater than I. 7, and PF greater than .93. HID lamp ballasts shall be high power factor (.90 or greater) type. HID lamps shall be ceramic type. Provide all mounting hardware, adaptors, and accessories as required. UON, center all
- downlight and wallwasher fixtures on the ceiling tile. BUILDING WIRE AND CABLE: All wiring shall be copper, unless otherwise noted as aluminum. Interior wire shall be copper THHN, #12 AWG minimum. Exterior or underground wire shall be XHHW copper. Conductors #10 and #12 shall be solid. Conductors sized larger than #10 shall be stranded. Control and signal wire shall be type TFF copper, min. size #16. Where no wire sizes are shown on plans, provide and install as required by NEC. If no branch circuit wiring interconnection and/or circuit home runs are shown between devices on plans, and if subscript circuit number designations are shown adjacent to the devices, circuit the devices according to
- subscript notations. Joints and splices in wire shall be made with solderless connectors, and covered so that insulation is equal to conductor insulation. Wire nuts shall not be used for conductors #8 and larger. No splices shall be pulled into conduit. Both conductors and conduit shall be continuous from outlet to outlet. All conduits shall have bushings, with smooth beveled throats installed at both ends, prior to installing conductors. Circuits may be combined, if conduit sizes are adjusted where necessary, and if NEC derating factors are observed. Type MC cable may be used, as permitted by Article 330 of NEC. Type NM cable may be used, as permitted by Article 334 of NEC.
- . CONDUIT: All raceways shall be a minimum W' diameter. Use EMT for general interior work, when conduit must be installed exposed. RGS or IMC shall be used in floor slabs, where embedded in concrete, areas exposed to moisture, areas in danger of mechanical injury and hazardous areas. PVC Schedule 40 (3/4" minimum diameter) shall be used below grade with steel transitions through slabs. Use flexible metal conduit connections to motors. transformers, and other vibrating equipment. Exterior flex shall be liquidtight. EMT conduit fittings shall be compression type. Where no raceway sizes are shown on plans, provide and install as required by NEC. All exposed conduit shall be painted to match surface upon which it is installed. Interior wiring, as shown on plans, will typically be concealed in ceilings, walls, or floors, where possible, except in mechanical/electrical rooms, janitor closets, unfinished rooms, and other such rooms where conduits are typically exposed, and unless otherwise noted. Unless otherwise approved by the Architect, the installation of exposed conduit runs mounted to outside of exterior walls shall be kept to a minimum. Horizontal and vertical conduit runs which serve exterior components shall be concealed within interior walls or above ceilings.
- DEVICE PLATES: Cover plates shall be smooth nylon with color matching devices. Verify color with FF&E Finish Schedule on Architectural plans. For unfinished areas with exposed conduit, cover plates shall be galvanized steel with beveled edges. . FUSES: Class RK-1 time delay fuses shall be used for protecting circuit breakers; Bussman Limitron, or equal.
- Class RK-5 time delay fuses shall be used for protection of motors and transformers; Bussman Fusetron, or equal. Fuses shall be rated for 200K AIC at rated voltage. OUTLET BOXES: Except as noted, boxes shall be standard galvanized or sheradised, at least 1-1/2 inches deep or as noted in plans, and of metal at least 1/16 inch thick. Plastic boxes which are at least 1/16 inch thick and at
- least 1-1 /2 inches deep, or as noted on plans, are also permitted. Boxes shall be sized to accommodate devices and conductors as per NEC Article 370. Coordinate depth with wall construction. Boxes used with exposed conduit shall be 4-inch square utility boxes. Exterior boxes shall be galvanized cast-iron with gaskets and appropriate fittings. Boxes shall be provided with approved 3/8" fixture studs where required. Except where located in concrete block, switch and receptacle boxes shall be 4" square for single gang installation. Appropriate gang boxes shall be used for mounting ganged switches. All outlet box openings shall be sealed with listed putty
- WIRING DEVICES: Switches shall be A.C. type as made by Hubbell, Pass & Seymour, General Electric, or Leviton. Receptacles shall be by Hubbell, Bryant, Pass & Seymour, General Electric, or Leviton. Color shall be selected by FF&E Finish Schedule on Architectural plans. Provide matching plugs for special purpose receptacles when required for connecting equipment. All receptacles in toilets, within six (6) feet of sinks, in commercial kitchens, and in exterior locations shall be GFCI type. Additionally, exterior receptacles shall be listed weather-resistant type.
- SAFETY SWITCHES AND DISCONNECTS: Safety switches and disconnect switches shall be Type HD by Cutler-Hammer, Square D, or General Electric. Locate disconnects adjacent to equipment on suitable structure. A disconnect shall not be required other than the CB which provides power to equipment when equipment is within sight and not greater than 50 feet from CB. Verify disconnect size from equipment nameplate data. Mount disconnects for outside HVAC units no higher than height of unit. GROUNDING: All equipment shall be grounded and bonded in accordance with local regulations and National
- Electrical Code. Install a green equipment grounding conductor in all raceways. . COLOR CODING OF CONDUCTORS: Color code conductors in accordance with the NEC and with standard and accepted trade practices. 22. OUTLET BOX MOUNTING HEIGHTS: Unless otherwise noted, Wall Switches (general): 44" AFF; Receptacles:
- 18" AFF. All mounting heights noted on plans are measured to the top of outlet boxes. 23. VERIFY: The word "verify" when used in plans shall mean to verify location and wiring requirements before circuiting and to circuit in accordance with the manufacturcr1s recommendations and in compliance with the
- 4. DATA, CABLE TV, AND TELEPHONE: For data outlets, cable TV outlets, and telephone outlets, the wiring, jacks, and faceplates shall be provided by the Controll ctor, unless otherwise noted. Mount individual data outlets, cable TV outlets, and telephone outlets at exactly the same height as receptacles, unless noted

- 26. PANELBOARDS: Panelboards shall be of a dead-front safety type equipped with thermal magnetic molded case circuit breakers with frame and trip ratings as shown on the schedule. Circuit breakers shall be quick-make, quick-break, thermal magnetic trip indicating and shall have common trip on all multiple breakers. Connection to the buss shall be bolt on. Terminals for feeder conductors to the panelboard mains and neutral shall be UL listed as suitable for the type of conductor specified. Terminals for branch circuit wiring, both breaker and neutral, shall be UL listed as suitable for the type conductor specified. Panelboards not shown to be rated for service entrance equipment shall be equipped with an isolated neutral and a grounding buss. The panelboard front shall be of the hinged front type with doors equipped with flush, brushed steel, cylinder tumbler-type locks with catches and spring-loaded door pulls. The flush lock shall not protrude beyond the front of the door. All panelboard locks shall be keyed alike. A circuit directory frame and card with a clear plastic covering shall be provided on the inside of the door. Panelboards shall be rated for use as Service Entrance Equipment where required by NEC. For all flush-installed house panelboards which serve common building
- General Electric, Square D, or Cutler-Hammer. Load.centers shall not be used unless indicated on plans. 27. NEC: "NEC" refers to the 2017 edition of the National Electrical Code. 28. EXTERIOR/WET LOCATION EQUIPMENT: All exterior enclosures or enclosures exposed to moist conditions shall be rated NEMA 3R or rated for use in damp or wet locations, as each case requires. All equipment labeled with 11WP" on Plans shall be rated for use in wet locations or provided with a listed weatherproof enclosure in accordance with NEC Article 406.9(B).

spaces, install five spare empty 3/4" conduits stubbed to the above ceiling space. Panclboards shall be by

- 29. UNDERGROUND INSTALLATIONS: Where conduit is installed below grade, the minimum burial depth shall be 24", unless installed under building slab (where there is no minimum burial depth). Where rigid conduit is installed below grade, coat conduit and couplings with (2) coats of asphaltum paint. Underground primary conduit, installed in coordination with power company, shall be installed at a depth as directed by power company. Avoid all existing utilities. Any existing utilities damaged shall be repaired at Contractor1s expense and as directed by Architect. Restore any damaged paving to match existing.
- ). IDENTIFICATION: Provide I" high laminated phenolic nameplates, permanently installed, with 3/8" high white letters on black, on the front of all disconnect switches, CB enclosures, panelboards, contactors, transformers, transient voltage surge suppressors, starters, and other similar typical electrical equipment enclosures, when shown as labeled on Plans. . CLEAN UP: During the progress of work, keep the Owner's premise in a neat and orderly condition, free from
- accumulation of debris resulting from this work. At the completion of the work, remove all material, scrap, etc. not a part of this Contract. 2. OPERATION AND MAINTENANCE INSTRUCTIONS: Submit one set of all equipment catalogs and maintenance data to the Architect. Explain and demonstrate the electrical systems to Owner and/or Owner's
- 3. DRAWING LINEWEIGHTS: Items shown with bold/thick lineweight indicate work to be performed as part of this Contract. Items shown with screened/thin lineweight are existing to remain or by others. Items shown with screened/thin lineweight, which arc also shown with associated bold/thick lineweight text or notes, or items that are shown with bold/thick lineweight and labeled as existing, are existing and shall be modified as indicated in
- 44. ADDITIONAL SPECIFICATIONS: See "booklet" Specifications Sections, included with these Drawings, which additionally constitute as an integral part of these Plans.

# **ELECTRICAL GENERAL NOTES:**

- DRAWINGS ARE DIAGRAMMATIC ONLY. EXACT LOCATIONS, MOUNTING HEIGHTS OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATE WITH THE EQUIPMENT REQUIREMENTS AND FIELD CONDITIONS. REFERENCE COMPLETE CONSTRUCTION DOCUMENTS (ARCHITECTURAL, MECHANICAL, PLUMBING, AND STRUCTURAL) PRIOR TO COMMENCING WORK FOR ADDITIONAL INFORMATION AND REQUIREMENTS. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT THE OWNER'S/ARCHITECT'S ATTENTION BEFORE
- PROCEEDING WITH WORK. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE ELECTRICAL WORK COMPLETE AND READY FOR OPERATION. CONTRACTOR SHALL PROVIDE CONNECTIONS TO OWNER, CONTRACTOR, OR OTHER PARTY'S EQUIPMENT AND DEVICES, UNLESS OTHERWISE NOTED. ON THE DAY OF SPECIALTY EQUIPMENT INSTALLATION, THE ELECTRICIAN MUST BE ON SITE TO MAKE FINAL CONNECTIONS WHERE NECESSARY
- THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED PROJECT TO INSPECT THE EXISTING CONDITIONS AND DETERMINE THE SCOPE OF HIS WORK AND THE EXTENT OF DEMOLITION. THE SITE INSPECTION SHALL BE MADE PRIOR TO SUBMITTING BID FOR THE PROPOSED PROJECT. NO COMPENSATION WILL BE ALLOWED FOR FAILURE TO INSPECT THE SITE. CONTRACTOR SHALL INFORM ARCHITECT PRIOR TO BIDDING OF DISCREPANCIES WHICH EXISTING BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS. REFER TO RISER DIAGRAM FOR FEEDER SIZES FOR PANELBOARDS. CONTRACTOR SHALL REVIEW CONSTRUCTION DOCUMENTS TO IDENTIFY MISCELLANEOUS POWER
- EQUIREMENTS AND PROVIDE CIRCUITING AS REQUIRED. COORDINATE POWER REQUIREMENTS WITH OTHER INSTALLERS. MISCELLANEOUS POWER REQUIREMENTS FOR CONTROL PANELS AND SMALL EQUIPMENT IS MANUFACTURER DEPENDENT AND MAY NOT BE SHOWN OR WILL BE DEFINED BY OTHERS. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL LIGHT FIXTURES. FINAL AIMING OF ALL ADJUSTABLE LIGHT FIXTURES TO BE AS DIRECTED BY ARCHITECT.
- CONTRACTOR SHALL COORDINATE INSTALLATION OF NEW LIGHTING FIXTURES, RECEPTACLES, PANELBOARDS ETC. WITH EXISTING STRUCTURE PIPING, ETC. AND MAKE ADJUSTMENTS AS REQUIRED. EDGE OF LIGHT SWITCH WALL PLATE SHALL BE NOT MORE THAN 4" AWAY FROM METAL/WOOD DOOR FRAME. TYPICAL FOR SINGLE OR MULTIPLE WALL SWITCHES.
- ). COORDINATE ALL LIGHTING CONTROL SENSOR LOCATIONS AND MAKE NECESSARY ADJUSTMENTS PER MANUFACTURER RECOMMENDATIONS AND FIELD CONDITIONS. CONTRACTOR SHALL COORDINATE WITH
- OWNER/ARCHITECT A POST OCCUPANCY TIME TO ADJUST ALL LIGHTING SENSORS. OVERCURRENT PROTECTION, WIRE SIZE, AND NUMBER OF CONNECTION POINTS FOR MECHANICAL HVAC EQUIPMENT IS FOR ITEMS SPECIFIED. COORDINATE WITH MECHANICAL CONTRACTOR AND MAKE NECESSARY CHANGES PRIOR TO INSTALLATION FOR ACTUAL EQUIPMENT FURNISHED AT NO COST TO OWNER. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT. REFER TO HVAC/ELECTRICAL
- SCHEDULE FOR WIRING INFORMATION. . PROVIDE A SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT. DO NOT SHARE NEUTRALS. . ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT ELECTRICAL REQUIREMENT OF ALL MECHANICAL AND PLUMBING FOUIPMENT WITH THE MECHANICAL AND PLUMBING CONTRACTORS PRIOR TO PURCHASING EQUIPMENT, VERIFY THE ELECTRICAL REQUIREMENTS WITH THE EQUIPMENT FURNISHED (NAME PLATE INFORMATION) AND MAKE CORRECTIONS AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. COORDINAT
- COORDINATE ALL 120V EXHAUST FAN CONTROLS WITH MECHANICAL PRIOR TO ROUGH-IN. PROVIDE FINISHED COVERPLATES FOR ALL JUNCTION BOXES. ALL JUNCTION BOXES AND COVERPLATES SHALL BE PAINTED LABELED. REFER TO DETAILS ON THE DRAWINGS. S. CONFIRM MOUNTING HEIGHTS AND COORDINATE LOCATION OF ALL OUTLETS, SWITCHES, AND OTHER DEVICES

EQUIPMENT LOCATIONS WITH MECHANICAL/PLUMBING DRAWINGS AND CONTRACTORS PRIOR TO ROUGH-IN.

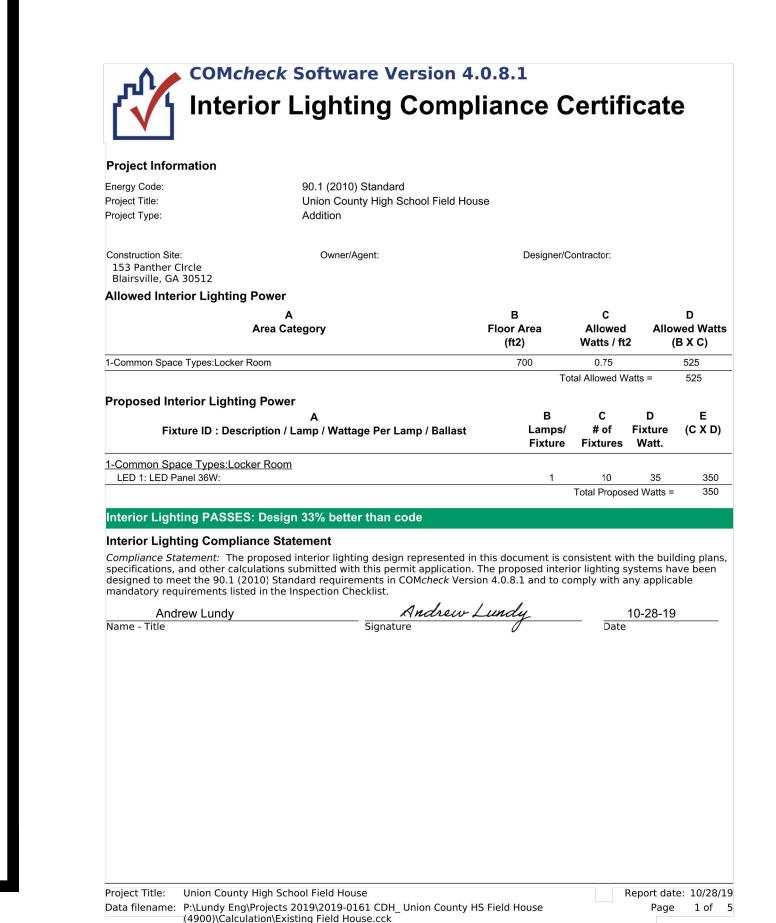
- WITH ARCHITECTURAL ELEVATIONS (FURNITURE LAYOUT, EQUIPMENT DRAWINGS, ETC.) PRIOR TO ROUGH-IN. . ALL WIRING SHALL BE IN EMT CONDUIT UNLESS NOTED OR APPROVED OTHERWISE. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH A PULL STRING
- 9. COORDINATE EXACT LOCATION AND COVER TYPE (CARPET, TILE, OR WOOD) FOR ALL FLOOR BOXES WITH ARCHITECT PRIOR TO ROUGH-IN. D. WHERE NOTED, WIRE AND CONDUIT SIZE INDICATED ON HOMERUNS SHALL BE CONTINUOUS THROUGH CIRCUIT 1. A GROUNDING CONDUCTOR SHALL BE INCLUDED IN EACH RACEWAY OR CABLE, SIZED IN ACCORDANCE WITH THE NATIONAL FLECTRICAL CODE
- 2. PROVIDE SCALED DRAWINGS OF ALL ELECTRICAL ROOMS TO THE ELECTRICAL ENGINEERS FOR APPROVAL PRIOR TO ORDERING EQUIPMENT. DRAWINGS MUST INSURE PROPER CLEARANCES ARE BEING MAINTAINED PEF THE NEC WITH ACTUAL EQUIPMENT BEING INSTALLED. TYPICAL FOR ALL NEW AND EXISTING ELECTRICAL 3. TERMINATIONS (LUGS, TERMINAL BLOCKS, ETC.) IN CIRCUIT BREAKERS, DISCONNECT SWITCHES, LIGHTING
- CONTACTORS, RELAYS, PANELBOARDS, TIME SWITCHES, ETC. SHALL BE RATED FOR 75C IN TEMPERATURE. IF TERMINATIONS IN EQUIPMENT SUCH AS EXHAUST FANS, WATER HEATERS, AIR CONDITIONING UNITS, TEC. ARE RATED FOR 60C ONLY, THEN CONDUCTORS MUST BE DE-RATED AND USED IN COMPLIANCE WITH TABLE 310-16 OF CURRENT NEC AND SIZED FOR THE 60C COLUMN. . BRANCH CIRCUIT CONDUCTORS SHALL NOT BE SMALLER THAN NO.12 AND WHERE BRANCH CIRCUIT CONDUCTOR RUNS FROM SOURCE (PANEL) TO THE LAST DEVICE ON THE CIRCUIT EXCEEDS 100FT. IN LENGTH.
- THE CONDUCTORS SHALL BE NO.10 MINIMUM AND FOR THE ENTIRE LENGTH OF THE CIRCUIT. FOR RUNS OVER 200FT. IN LENGTH THE CONDUCTOR SHALL BE NO.8 MINIMUM AND FOR THE ENTIRE LENGTH OF THE CIRCUIT. THE ABOVE APPLIES TO 120V CIRCUITS ONLY. 5. BRANCH CIRCUITING WIRES SHALL NOT PASS THROUGH ELECTRICAL DEVICES (PANELS, DISCONNECT
- SWITCHES, CONTRACTORS, ETC.) OTHER THAN THOSE DESIGNED FOR THE USE AS A JUNCTION BOX. 6. WIRE NUTS ARE NOT PERMITTED WITHIN THE ELECTRICAL PANEL OR ELECTRICAL DEVICES. ALL WIRING SHAL BE PULLED AT REQUIRED LENGTHS WITHOUT SPLICING WITHIN ELECTRICAL PANELS AND OTHER ELECTRICAL
- 7. BACK TO BACK RECEPTACLES IN ALL FIRE RATED WALLS SHALL BE INSTALLED PER THE INTERNATIONAL 28. PROVIDE ARC FLASH LABELING FOR ELECTRICAL EQUIPMENT PER NEC AND NFPA 70E. 29. CONTRACTOR SHALL ASSURE THAT ALL WORK CLEARANCES PER THE NEC ARE MET OR EXCEEDED WITH
- EQUIPMENT FURNISHED PRIOR TO ROUGH-IN. NOTIFY ARCHITECT OF ANY DISCREPANCIES WITH THE FLECTRICAL PLANS 30. PROVIDE SEISMIC BRACING PER THE INTERNATIONAL BUILDING CODE (IBC 2012, CHAPTER 13). 11. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH OSHA, THE NATIONAL ELECTRICAL CODE, AND LOCAL
- GOVERNING AUTHORITIES. 2. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, INSTALLATION REQUIREMENTS, AND ELECTRICAL REQUIREMENTS OF BANKING EQUIPMENT WITH BANKING EQUIPMENT VENDORS AND ARCHITECT PRIOR TO
- 33. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, INSTALLATION REQUIREMENTS, AND ELECTRICAL REQUIREMENTS OF SECURITY EQUIPMENT WITH SECURITY EQUIPMENT VENDOR AND ARCHITECT PRIOR TO 34. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, INSTALLATION REQUIREMENTS, AND ELECTRICAL REQUIREMENTS OF VAULT AND VAULT EQUIPMENT PRIOR TO ROUGH-IN.

13 14

# **GFCI NOTES:**

ALL 15A/20A RECEPTACLES IN KITCHENS, FOOD PREP AREAS, RESTROOMS, OR ON EXTERIOR SHALL BE GFCI TYPE. GFCI RECEPTACLES SHALL BE INSTALLED IN ACCORDANCE WITH 2017 NEC ARTICLE 210.8 AND BE READILY ACCESSIBLE. FOR EQUIPMENT THAT WOULD HAVE TO BE MOVED TO RESET THE RECEPTACLE PER THE NEC DEFINITION, A GFCI BREAKER SHALL BE UTILIZED IN LIEU OF A RECEPTACLE.

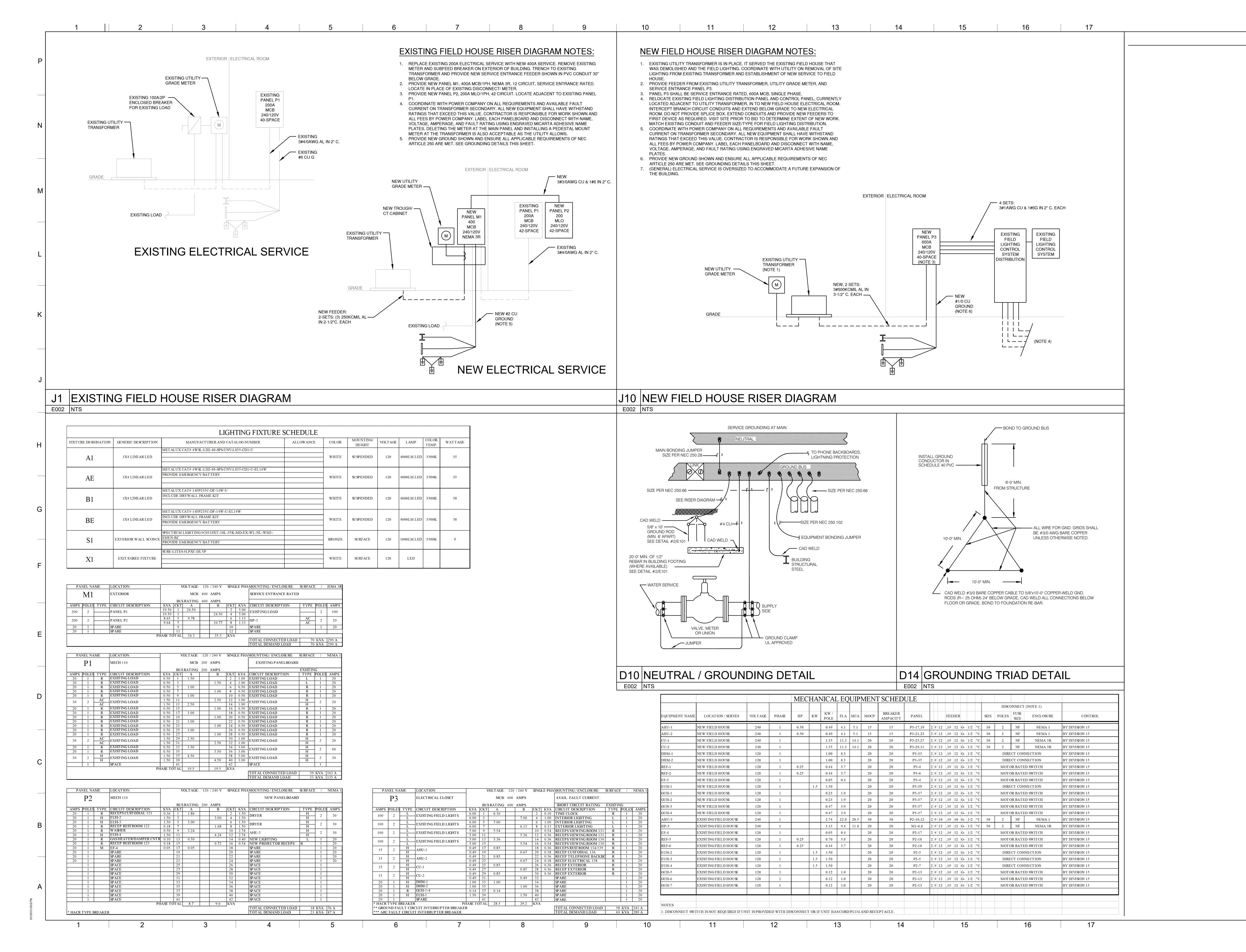




DELETE THE SCOPE OF WORK WITHIN THE EXISTING VARSITY LOCKER ROOM AND ASSOCIATED RESTROOMS, SHOWERS, AND STORAGE SPACES. DELETE ALL ELECTRICAL ASSOCIATED WITH NEW HVAC EQUIPMENT. (HVAC DELETE DELETE THE EXISTING FIELD HOUSE ADDITION FROM SCOPE OF WORK INCLUDING ELECTRICAL SERVICE UPGRADE.

PRICING ALTERNATIVES:

1 2 3 4 5 6 7 8 9 10 11 12



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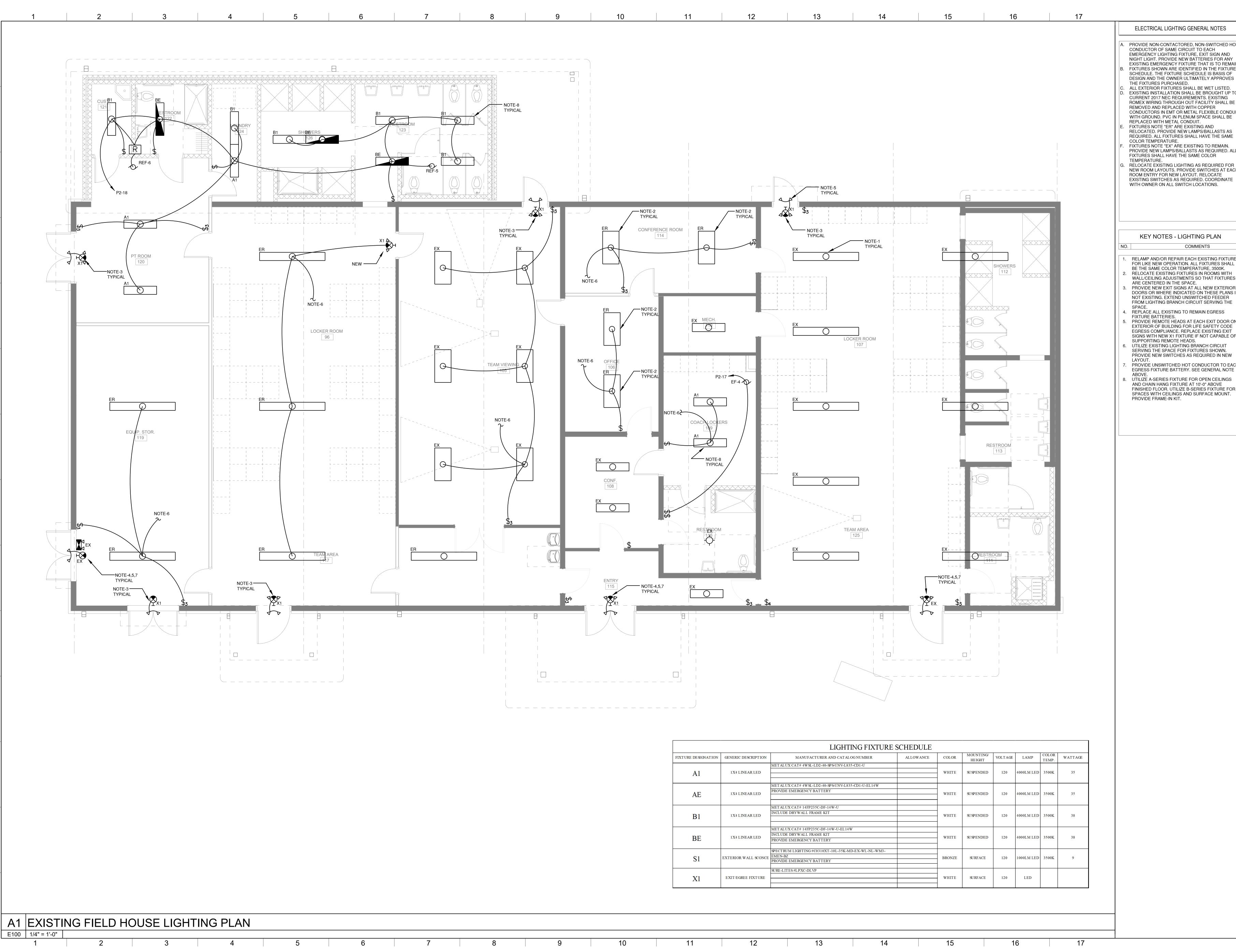
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PROJECT NO: DESIGN DEVEL. 100% CD's 11/08/2019

CONTRACT DOCUMENT ISSUED FOR CONSTRUCTION

SHEET TITLE ELECTRICAL DETAILS &

SCHEDULES



ELECTRICAL LIGHTING GENERAL NOTES

A. PROVIDE NON-CONTACTORED, NON-SWITCHED HOT CONDUCTOR OF SAME CIRCUIT TO EACH EMERGENCY LIGHTING FIXTURE, EXIT SIGN AND NIGHT LIGHT. PROVIDE NEW BATTERIES FOR ANY EXISTING EMERGENCY FIXTURE THAT IS TO REMAIN. B. FIXTURES SHOWN ARE IDENTIFIED IN THE FIXTURE SCHEDULE. THE FIXTURE SCHEDULE IS BASIS OF

DESIGN AND THE OWNER ULTIMATELY APPROVES THE FIXTURES PURCHASED. ALL EXTERIOR FIXTURES SHALL BE WET LISTED. EXISTING INSTALLATION SHALL BE BROUGHT UP TO CURRENT 2017 NEC REQUIREMENTS. EXISTING ROMEX WIRING THROUGH OUT FACILITY SHALL BE REMOVED AND REPLACED WITH COPPER CONDUCTORS IN EMT OR METAL FLEXIBLE CONDUIT

WITH GROUND. PVC IN PLENUM SPACE SHALL BE REPLACED WITH METAL CONDUIT. FIXTURES NOTE "ER" ARE EXISTING AND RELOCATED. PROVIDE NEW LAMPS/BALLASTS AS

FIXTURES NOTE "EX" ARE EXISTING TO REMAIN. PROVIDE NEW LAMPS/BALLASTS AS REQUIRED. ALL FIXTURES SHALL HAVE THE SAME COLOR RELOCATE EXISTING LIGHTING AS REQUIRED FOR NEW ROOM LAYOUTS. PROVIDE SWITCHES AT EACH

# KEY NOTES - LIGHTING PLAN

. RELAMP AND/OR REPAIR EACH EXISTING FIXTURE FOR LIKE NEW OPERATION. ALL FIXTURES SHALL BE THE SAME COLOR TEMPERATURE, 3500K.

RELOCATE EXISTING FIXTURES IN ROOMS WITH WALL/CEILING ADJUSTMENTS SO THAT FIXTURES ARE CENTERED IN THE SPACE. PROVIDE NEW EXIT SIGNS AT ALL NEW EXTERIOR DOORS OR WHERE INDICATED ON THESE PLANS IF NOT EXISTING. EXTEND UNSWITCHED FEEDER FROM LIGHTING BRANCH CIRCUIT SERVING THE

FIXTURE BATTERIES. PROVIDE REMOTE HEADS AT EACH EXIT DOOR ON EXTERIOR OF BUILDING FOR LIFE SAFETY CODE EGRESS COMPLIANCE. REPLACE EXISTING EXIT SIGNS WITH NEW X1 FIXTURE IF NOT CAPABLE OF SUPPORTING REMOTE HEADS.

SERVING THE SPACE FOR FIXTURES SHOWN. PROVIDE NEW SWITCHES AS REQUIRED IN NEW PROVIDE UNSWITCHED HOT CONDUCTOR TO EACH

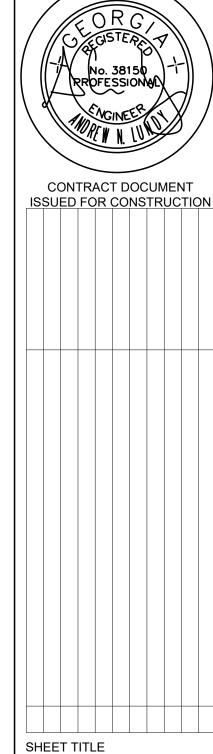
8. UTILIZE A-SERIES FIXTURE FOR OPEN CEILINGS AND CHAIN HANG FIXTURE AT 10'-0" ABOVE FINISHED FLOOR. UTILIZE B-SERIES FIXTURE FOR SPACES WITH CEILINGS AND SURFACE MOUNT.

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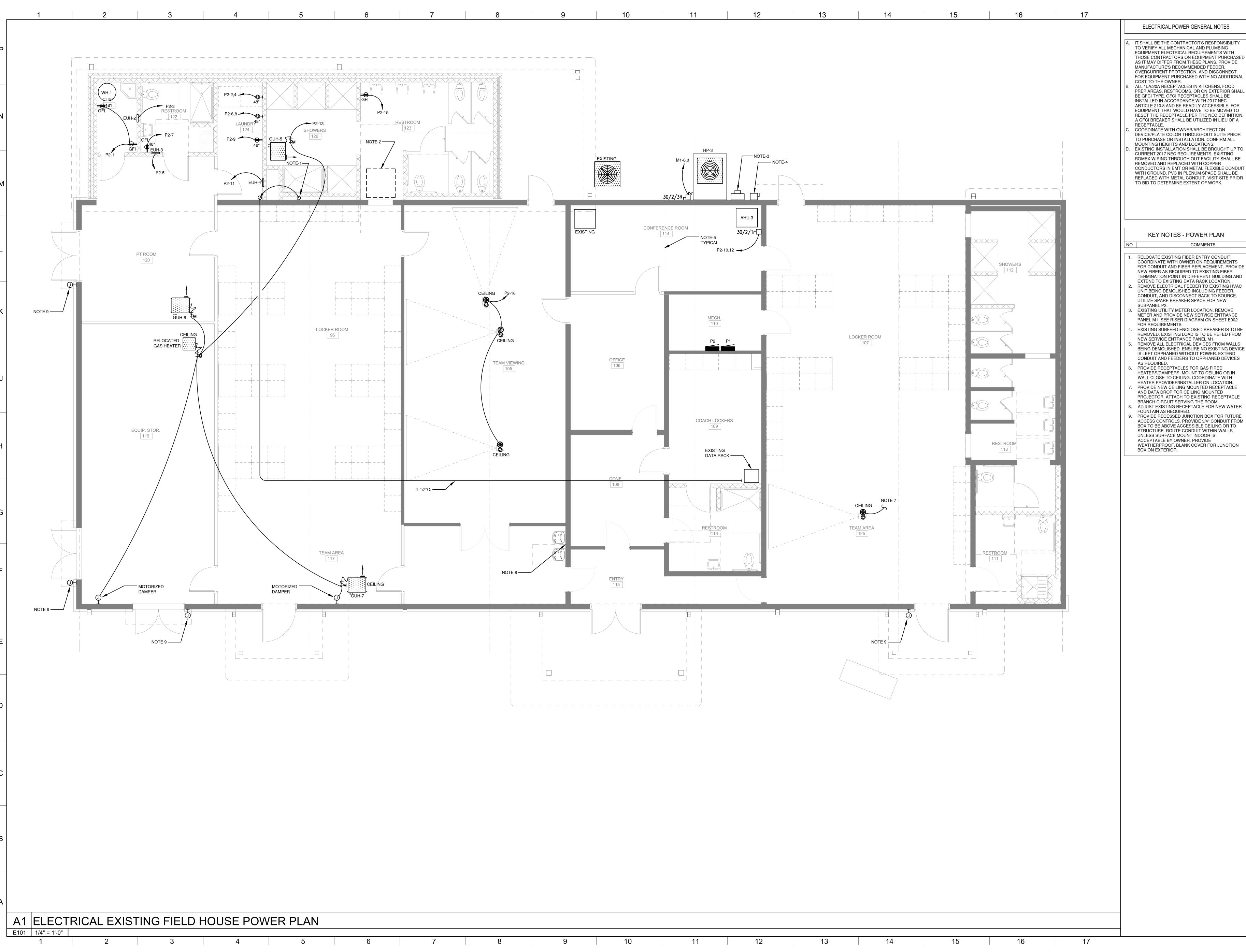
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ELECTRICAL EXISTING FIELD HOUSE LIGHTING PLAN

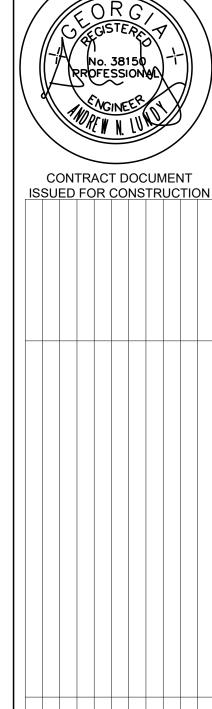


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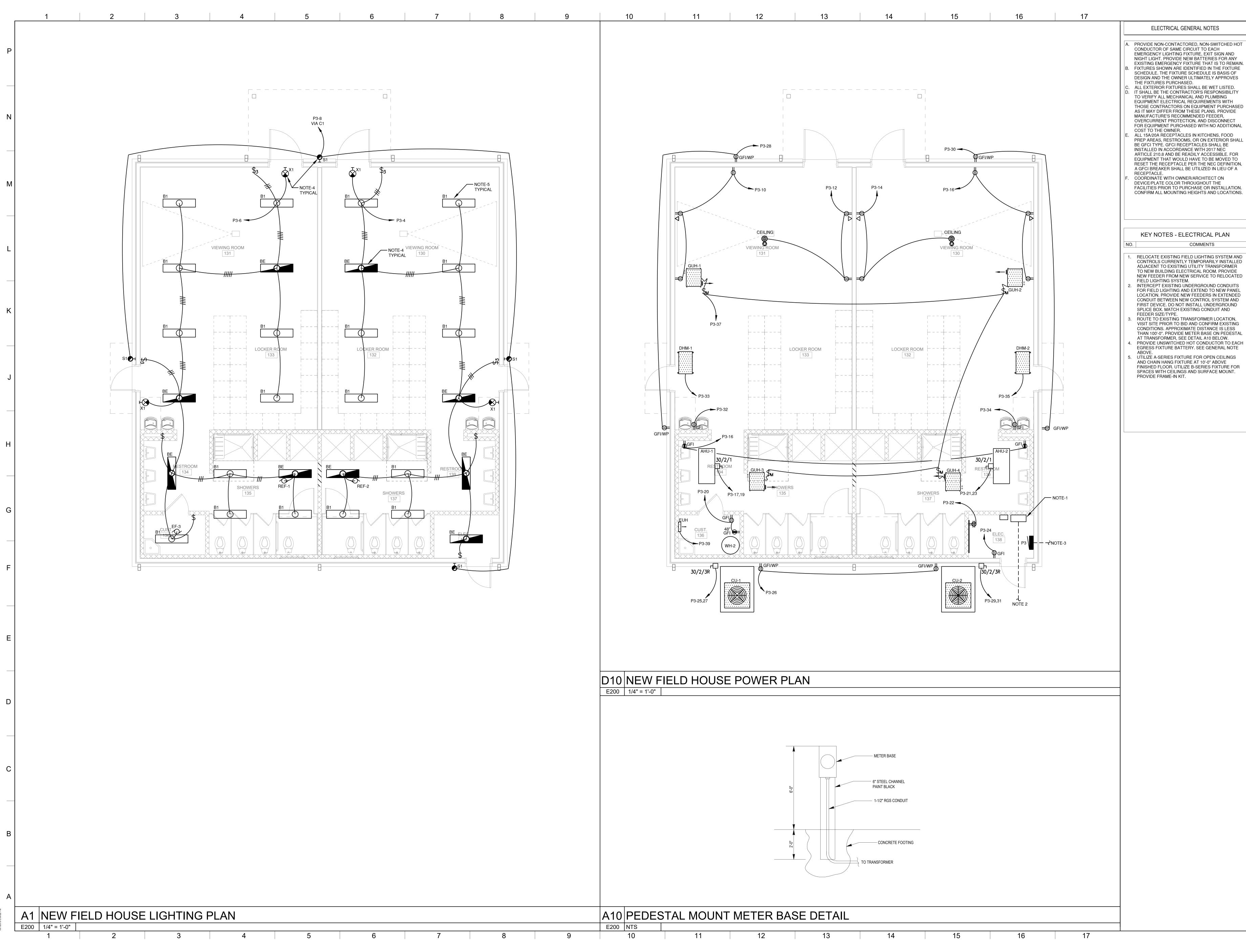
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METER AND PROVIDE NEW SERVICE ENTRANCE PANEL M1. SEE RISER DIAGRAM ON SHEET E002 EXISTING SUBFEED ENCLOSED BREAKER IS TO BE REMOVED. EXISTING LOAD IS TO BE REFED FROM

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SHEET TITLE ELECTRICAL EXISTING FIELD HOUSE POWER



ARCHITECTURE

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