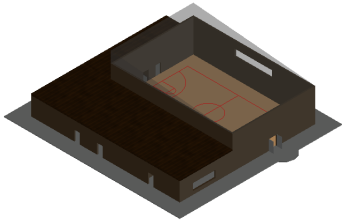
Escondido MFRO Intermediate Booster Pump Station

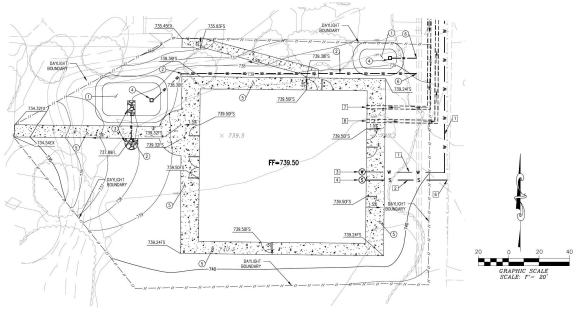
JUMP STREET ENGINEERING INC.

PRELIMINARY DESIGN



A 3D rendering of our design is shown above. The booster pump station is located in two rooms on the north side of the building along with a concessions stand/office on the north west side. On the east side of the building there are two restrooms, and the basketball court is on the south side of the building. We will propose two biofiltration basins located west of the structure at a low point on the project site.

AUTOCAD DESIGN



Displayed above is our grading design that was developed through AutoCAD Civil 3D. Using the feature line tool, we graded the existing topography for our proposed structure. Our proposed finished floor elevation is 739.50 feet.

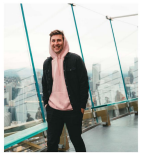
PROJECT OVERVIEW

The city of Escondido is constructing a pipeline that conveys water from a water treatment plant to a distribution reservoir. In order to provide enough pressure so that the water can adequately flow from the plant to the reservoir, an intermediate booster pump station must be constructed to support the overall project. Our team at Jump Street Engineering Inc. has designed an intermediate booster pump station along with a recreation center at Mountain View Park to fulfill the needs of the community, and the city of Escondido project requirements.

ESCONDIDO City of Choice

MEET THE SQUAD


Enrique Naputi


Axel Rinder


Tim Fontimayor


Marvin Luluquisen


Enrico-Joaquin Santos


Yun Chiang

Enrico-Joaquin Santos: Project Manager

Axel Rinder: Structural Engineer

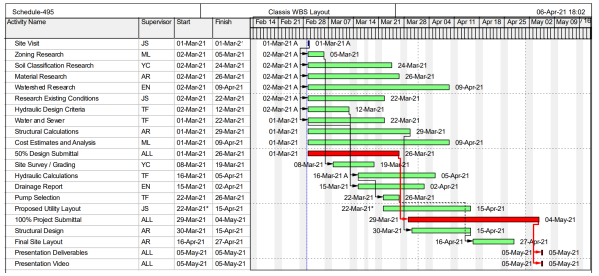
Yun Chiang: Geotechnical Engineer

Marvin Luluquisen: Construction Engineer

Tim Fontimayor: Hydraulic Engineer

Enrique Naputi: Environmental Engineer

PROJECT SCHEDULE



Shown above is a schedule which we created using Primavera P6. The schedule accounts for everything after the proposal, i.e when we were offered the job and shows a 3 month time frame. Early in the schedule, our focus is more towards research and development, later on you can see our focus shifts more towards actualizing our research and getting it pieced together in our 50% submittal, 100% submittal, and other design deliverables.

DESIGN CALCULATIONS & FINDINGS

Electrical Resistivity (ohm-cm)	Chloride Content	Percent Sulfate	PH
Less than 1,100 ohm-cm	More than 500 ppm	More than 0.15%, or 1,500 ppm	Less than 5.5

Field exploration and laboratory testing were performed by Ninyo & Moore

- Major soil: Placentia Sandy Loam (PfC), thick surface, hydrologic soil group D.
- Shallow foundation with spread and continuous footing are recommended.

Total Dynamic Head (P_2/Y):	-282.59 ft
Additional Pressure Required (P_2):	17633.62 lb/ft^2
Power (Pw):	520.22 BHP

Total dynamic head and additional pressure required were both calculated using Bernouli's equation with an assumed temperature of 70℉.

Enrique Naputi

Axel Rinder

Tim Fontimayor

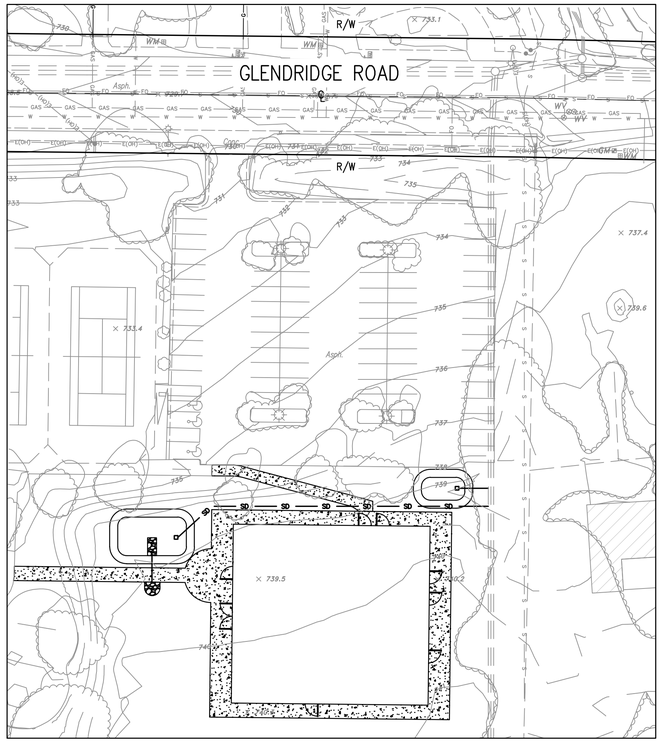
Marvin Luluquisen

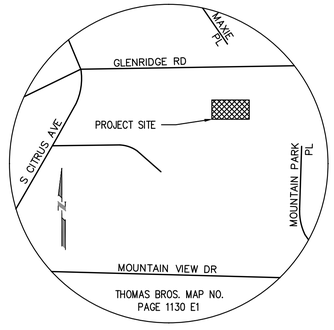
Enrico-Joaquin Santos

Yun Chiang

GRADING PLANS FOR:

MFRO INTERMEDIATE BOOSTER PUMP STATION





VICINITY MAP
NO SCALE

STORM WATER POLLUTION PREVENTION NOTES:

1. BEST MANAGEMENT PRACTICES (BMPS) SHALL BE IMPLEMENTED DURING ALL PHASES OF CONSTRUCTION IN CONFORMANCE WITH THE CITY OF ESCONDIDO'S MUNICIPAL CODE. ADDITIONALLY, SITES OVER AN ACRE SHALL ABIDE BY THE CONSTRUCTION GENERAL PERMIT (CGP). ALL BMPS SHALL BE INSTALLED IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE CASQA HANDBOOK. AT A MINIMUM PERIMETER CONTROL AND CONSTRUCTION ENTRANCES SHOULD BE IN PLACE PRIOR TO A GRADING PERMIT BEING ACTIVATED.
2. INSPECTION, MODIFICATION AND MAINTENANCE OF THE BMPS SHALL BE IMPLEMENTED AS NECESSARY. IN THE EVENT OF FAILURE OR REFUSAL TO PROPERLY MAINTAIN THE BMPS, THE CITY MAY ISSUE EMERGENCY MAINTENANCE WORK TO BE COMPLETED TO PROTECT ADJACENT PRIVATE AND PUBLIC PROPERTY. THE COST (INCLUDING AN INITIAL MOBILIZATION AMOUNT) AND ANY FINES ASSESSED TO THE CITY SHALL BE CHARGED TO THE OWNER OF THE PROJECT.
3. NECESSARY MATERIALS TO IMPLEMENT THE REQUIRED BMPS SHALL BE AVAILABLE ON SITE TO FACILITATE RAPID DEPLOYMENT OR TO REPAIR ANY BMP FAILURES.
4. CITY STAFF SHALL BE ALERTED BY THE CONTRACTOR, PERMITTEE OR OWNER, AS NEEDED FOR EMERGENCY WORK DURING STORMS.
5. RUN-ON FLOW ONTO THE SITE SHALL BE PROPERLY MANAGED AND PLANNED FOR TO PREVENT FAILURE OF BMPS AND/OR ILLEGAL DISCHARGES FROM THE PROJECT SITE INTO THE STORM DRAIN.
6. STORM DRAIN INLET PROTECTION SHALL BE INSTALLED AT EVERY ONSITE STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAIN SYSTEM. WHERE FEASIBLE DESILTING BASINS SHALL ALSO BE PROVIDED AT DRAINAGE OUTLETS FROM THE GRADED SITE.
7. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED ON SLOPES AND ANY EXPOSED SOIL USING THE FOLLOWING BMPS, FIBER BLANKETS, BONDED FIBER MATRIX; OR BY INSTALLING OR MAINTAINING EXISTING VEGETATION. THE CONTRACTOR SHALL IMMEDIATELY REPAIR AND STABILIZE ANY ERODED AREAS. INACTIVE SLOPES SHALL BE PROTECTED AND STABILIZED. ALL EXPOSED SOIL INCLUDING INACTIVE AND ACTIVE SLOPES SHALL BE PROTECTED PRIOR TO A RAIN EVENT.
8. ALL UNPAVED GRADED CHANNELS SHALL IMPLEMENT EROSION PREVENTION MEASURES SUCH AS, LINING AND INSTALLING VELOCITY CHECK DAMS AT REGULAR INTERVALS.
9. STREET SWEEPING VEHICLES WITH VACUUMS AND WATER TANKS SHALL BE USED TO KEEP PAVED STREETS FREE OF LOOSE SOIL AND/OR CONSTRUCTION DEBRIS.
10. CONTRACTORS SHALL HAVE WATER TRUCKS AND EQUIPMENT ON-SITE TO MINIMIZE AIRBORNE DUST CREATED FROM GRADING AND HAULING OPERATIONS OR EXCESSIVE WIND CONDITIONS. ADDITIONAL DUST CONTROL MEASURES SHALL BE IMPLEMENTED AD NEEDED.
11. STOCKPILES SHALL BE COVERED AT THE END OF EACH WORKING DAY AND PRIOR TO FORECAST RAIN. ASPHALT SHALL ADDITIONALLY BE PLACED ON A LAYER OF PLASTIC SHEET, OR EQUIVALENT.
12. ALL PORTABLE TOILETS SHALL HAVE SECONDARY CONTAINMENT AND NOT BE LOCATED NEAR STORM DRAIN (I.E., CATCH BASIN OR STREET).
13. VEHICLES SHALL HAVE DRIP PANS UNDERNEATH THEM AND ANY LEAKS OR SPILLS SHALL BE PROMPTLY REPAIRED AND REMOVED.
14. ALL DEBRIS SHALL BE PLACED IN DUMPSTERS WITH LIDS. THE LIDS SHALL BE CLOSED AT THE END OF EACH DAY AND ARE NOT TO BE OVERFILLED. ADDITIONAL TRASH PICK-UPS SHALL BE MADE AS NECESSARY.
15. LIQUID MATERIALS SHALL BE STORED IN CLOSED CONTAINERS IN SECONDARY CONTAINMENT AND UNDER COVER. SOLID MATERIALS SHALL BE STORED ON PALLETS AND BE COVERED PRIOR TO FORECAST RAIN.
16. A MATERIALS WASHOUT SHALL BE AVAILABLE ONSITE WHENEVER LIQUID MATERIALS ARE USED. THE WASHOUT SHALL FULLY CONTAIN WASH MATERIALS AND THE SURROUNDING AREA SHALL BE KEPT FREE OF SPILLS.
17. DISCHARGE OF POTABLE WATER (SUCH AS FROM POWER WASHING OR FILLING WATER TRUCKS) SHALL BE PREVENTED OR DIRECTED TO LANDSCAPE.
18. PERIMETER CONTROL IS REQUIRED ON ALL SITES.
19. ALL ACTIVE ENTRANCES SHALL PREVENT TRACKING BY INSTALLING STABILIZED CONSTRUCTION ENTRANCES.

SHEET INDEX

LEGAL DESCRIPTION:

BLOCK 262 LOT 1

SITE ADDRESS:

1160 S CITRUS AVE
ESCONDIDO, CA 92027

ASSESSOR'S PARCEL NO.:

APN: 231-220-21

ENGINEER'S CERTIFICATION OF STRUCTURAL BMP'S

THE ENGINEER OF RECORD SHALL VERIFY THAT THE STRUCTURAL BMP'S HAVE BEEN CONSTRUCTED AND OPERATE IN COMPLIANCE WITH ALL OF THE DESIGN SPECIFICATIONS, PLANS, PERMITS, ORDINANCES AND THE REQUIREMENTS OF THE MS4 PERMIT.

THE ENGINEER OF RECORD SHALL PROVIDE THE FIELD OFFICE WITH A SIGNED AND STAMPED CERTIFICATION(S) THAT THE PROJECT'S SITE DESIGN AND STRUCTURAL BMP'S WERE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SWQMP. THE CERTIFICATION SHALL INCLUDE PHOTOGRAPHS TAKEN DURING SEVERAL PHASES OF THE TREATMENT FACILITIES DURING CONSTRUCTION (INCLUDING PHOTOGRAPHS OF SUBSURFACE STRUCTURES AND MATERIALS) AND FINAL AS-BUILT CONDITIONS.

RETAINING WALL NOTES

1. ALL RETAINING WALLS SHALL COMPLY WITH THE LATEST EDITION OF THE CALIFORNIA BUILDING CODES WHICH TYPICALLY ADOPTS THE LATEST UBC "UNIFORM BUILDING CODE".
2. THE PROJECT ENGINEER SHALL PROVIDE THE FOLLOWING INSPECTION REPORTS AND/OR CERTIFICATIONS TO THE FIELD ENGINEERING INSPECTOR DURING RETAINING WALL CONSTRUCTION:
   - AFTER RETAINING WALL FOUNDATION EXCAVATION AND PRIOR TO STEEL PLACEMENT, THE SOILS ENGINEER SHALL CERTIFY IN WRITING THAT THE FOUNDATION EXCAVATIONS COMPLY WITH THE INTENT OF THE SOILS REPORT.
   - ALL SPECIAL INSPECTION CERTIFICATIONS AS CALLED FOR ON THESE PLANS.
3. TWO (2) COPIES OF A RETAINING WALL CERTIFICATION REPORT SIGNED AND SEALED BY A CALIFORNIA REGISTERED CIVIL ENGINEER SHALL BE SUBMITTED TO THE FIELD ENGINEERING INSPECTOR PRIOR TO ROUGH GRADING SIGN-OFF. THE REPORT SHALL CERTIFY THAT ALL CONSTRUCTION MATERIALS (SIZE, SPACING, STRENGTH, ETC.) ARE IN ACCORDANCE WITH THESE APPROVED PLANS.

EARTHWORK DATA

CUT = 802 C.Y. FILL = 78 C.Y.
NET = 60 C.Y. REMEDIAL = 0 C.Y.

TOTAL LOT AREA =
TOTAL DISTURBED AREA =

OUTSIDE OF BUILDING
MAX. CUT DEPTH _____ [FT]
MAX CUT SLOPE RATIO (2:1MAX) _____
MAX. FILL DEPTH _____ [FT]
MAX FILL SLOPE RATIO (2:1MAX) _____

THESE QUANTITIES DO NOT INCLUDE ANY LOSSES DUE TO SHRINKAGE, SUBSIDENCE, OVEREXCAVATION, OR ANY SPECIAL REQUIREMENTS THAT MAY BE SPECIFIED IN THE PRELIMINARY SOILS REPORT. THESE QUANTITIES ARE FOR PERMIT PURPOSES ONLY. ALL CONTRACTORS BIDDING ON THIS PROJECT SHOULD MAKE THEIR OWN DETERMINATION OF EARTHWORK QUANTITIES PRIOR TO SUBMITTING A BID.

KEY MAP

1"=40'

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT. THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF ESCONDIDO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

ENRICO-JOAQUIN SANTOS — DATE
JUMP STREET ENGINEERING INC.

SOILS ENGINEER CERTIFICATE

THIS GRADING AND RETAINING WALL PLAN HAS BEEN REVIEWED BY THE UNDERSIGNED AND FOUND TO BE IN CONFORMANCE WITH THE RECOMMENDATIONS AND SPECIFICATIONS OUTLINED IN THE SOILS REPORT PREPARED FOR THIS DEVELOPMENT.

COMPANY: _____
ADDRESS: _____
PHONE: _____ DATE: _____
ENGINEER: _____ R.C.E. NO.

DIGALERT
CALL BEFORE YOU DIG
1-800-227-2600
2 WORKING DAY NOTICE REQUIRED

JUMP STREET ENGINEERING INC.

GENERAL NOTES

1. ALL WORK TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 2015 EDITION, EFFECTIVE DECEMBER 07, 2016 BY RESOLUTION NO. 2016-17 AND THE DESIGN STANDARDS AND STANDARD DRAWINGS OF THE CITY OF ESCONDIDO EFFECTIVE APRIL 02, 2014 BY RESOLUTION 2014-08, ALONG WITH ANY AMENDMENTS THERETO.
2. ALL CONTRACTORS WORKING IN THE PUBLIC RIGHT OF WAY SHALL OBTAIN A SEPARATE ENCROACHMENT PERMIT FROM THE DIRECTOR OF ENGINEERING SERVICES, INSPECTION OF ALL WORK IS REQUIRED. CONTACT THE ENGINEERING FIELD OFFICE AT (760) 839-4664 TO ARRANGE FOR ENCROACHMENT PERMITS AND INSPECTION. TWENTY-FOUR HOUR ADVANCE NOTICE IS REQUIRED FOR INSPECTION. NO WORK SHALL BE PERFORMED IN THE PUBLIC RIGHT OF WAY ON SATURDAYS, SUNDAYS OR LEGAL HOLIDAYS WITHOUT THE EXPRESS PERMISSION OF THE CITY ENGINEER.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL SUBSTRUCTURES, WHETHER SHOWN HEREON OR NOT, AND PROTECT THEM FROM DAMAGE. THE EXPENSE OF REPAIR OR REPLACEMENT OF SAID SUBSTRUCTURES SHALL BE BORNE BY THE CONTRACTOR.
4. LOCATION AND ELEVATION OF ALL EXISTING IMPROVEMENTS WITHIN THE AREA OF WORK SHALL BE CONFIRMED BY FIELD MEASUREMENT PRIOR TO CONSTRUCTION OF NEW WORK. CONTRACTOR WILL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF ACTUAL LOCATION OF EXISTING FACILITIES.

WORK TO BE DONE

THE GRADING WORK SHALL CONSIST OF THE CONSTRUCTION OF ALL CUTS AND FILLS, RETAINING WALLS, REMEDIAL GRADING, DRAINAGE AND STORM WATER TREATMENT FACILITIES, EROSION CONTROL AND PLANTING OF PERMANENT LANDSCAPING.

LEGEND

DESCRIPTION	STD. DWG.	SYMBOL	QUANTITY
PROPERTY LINE			℄
RIGHT OF WAY			R/W
CENTERLINE			℄
EXISTING CONTOUR (MAJOR)		655	
EXISTING CONTOUR (MINOR)			
PROPOSED CONTOUR (MAJOR)		655	
PROPOSED CONTOUR (MINOR)			
DAYLIGHT LINE		CUT / FILL	
DIRECTION OF DRAINAGE			
EX. ASPHALT PAVEMENT			
CONCRETE PAVEMENT/SIDEWALK			
PERMEABLE PAVEMENT			
LANDSCAPING			
CURB ONLY	SDRSD G-01		
3" HDPE STORM DRAIN		SD	
3" PERFORATED STORM DRAIN			
SIDEWALK UNDERDRAIN	SDRSD D-27		
4" YARD INLET			
STABILIZED CONSTRUCTION ENTRANCE	CASQA TC-1		
SILTATION FENCE	CASQA SE-1		
MASONRY RETAINING WALL	SDRSD C-01		

GRADING NOTES

1. FOLLOWING THE APPROVAL OF THE GRADING PLAN, BUT NO LONGER THAN 48 HOURS BEFORE STARTING GRADING, THE CONTRACTOR SHALL OBTAIN A GRADING PERMIT FROM THE ENGINEERING FIELD OFFICE AT 5500 CAMPANILE DRIVE, (678) 999-8212.
2. GRADING AREAS SHOWN ON THESE PLANS IN ACCORDANCE WITH ARTICLE 55, EXCAVATION AND GRADING, OF THE ESCONDIDO ZONING CODE.
3. THE SOILS REPORT PREPARED BY DATED 3/26/2021 AND ALL SUPPLEMENTS THEREOF ARE INCORPORATED AND MADE A PART OF THE PLAN.
4. ALL FILLS SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY. A COMPACTION REPORT, ACCOMPANIED BY A PAD CERTIFICATION REPORT, SHALL BE SUBMITTED TO THE FIELD ENGINEER PRIOR TO THE ROUGH GRADING INSPECTION FOR ALL FILLS EXCEEDING ONE FOOT IN DEPTH, FOR EACH GRADED PAD. THE COMPACTION REPORT SHALL INCLUDE A STATEMENT THAT THE GEOTECHNICAL ENGINEERING AND ENGINEERING GEOLOGIC ASPECTS OF THE GRADING HAVE BEEN INSPECTED AND ARE IN COMPLIANCE WITH THE APPLICABLE CONDITIONS OF THE GRADING PERMIT, THE GEOTECHNICAL ENGINEER'S AND ENGINEERING GEOLOGIST'S RECOMMENDATIONS. THE COMPACTION REPORT AND PAD CERTIFICATION LETTER SHALL BE REVIEWED AND APPROVED BY THE FIELD ENGINEER PRIOR TO THE ROUGH GRADING APPROVAL.
5. ALL SLOPES SHALL BE CONTOUR-GRADED SO AS TO ROUND CORNERS AND TO BLEND MANUFACTURED SLOPES INTO ADJACENT NATURAL SLOPES. SEE SECTION 33-1066-C OF THE GRADING ORDINANCE FOR SPECIFIC REQUIREMENTS.
6. ALL SLOPES OVER THREE FEET IN HEIGHT SHALL BE LANDSCAPED. FOR SLOPES OVER FIVE FEET IN HEIGHT, THE CONTRACTOR SHALL PROVIDE PERMANENT SPRINKLER SYSTEMS INSTALLED ON EACH LOT.
7. PAD ELEVATION CERTIFICATES MUST BE SUBMITTED FOR EACH PAD A MINIMUM OF 3 DAYS PRIOR TO REQUESTING FINAL ROUGH GRADING INSPECTION. THE CERTIFICATE MUST BE AN ORIGINAL SIGNED AND SEALED BY A CALIFORNIA LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER WITH AN RCE NO. OF 33965 OR LESS, AND MUST CONTAIN AN ELEVATION TO THE NEAREST TENTH OF A FOOT. THE STATEMENT "SUBSTANTIAL CONFORMANCE" WILL NOT BE ALLOWED.
8. NO BLASTING SHALL BE DONE UNTIL A BLASTING PERMIT IS OBTAINED FROM THE ESCONDIDO FIRE DEPARTMENT AT 1163 N. CENTRE CITY PKWY. AT (760) 839-5400.

OWNER/APPLICANT
DEVELOPER:

CITY OF ESCONDIDO
NAME
201 NORTH BROADWAY
ADDRESS
ESCONDIDO, CA 92025
CITY, STATE, ZIP CODE
(760) 839 - 4651
PHONE

RECORD DRAWING
DAVID V. CARON R.C.E. XXXXX DATE

CITY OF ESCONDIDO ENGINEERING DEPARTMENT
APPROVED
By _____ Date _____
(for City Engineer)
Comments _____
OBTAIN GRADING PERMIT AT FIELD ENGINEERING OFFICE PRIOR TO GRADING

ESCONDIDO City of Choice

City Project No.
ENG XX-XXXX

CONSTRUCTION RECORD	REFERENCES	Date	By	REVISIONS	App'd	Date
Contractor						
Inspector						
Date Completed						

BENCH MARK
DESCRIPTION:
Bench Mark No. _____ Elevation _____

EARTHWORK QUANTITIES
CUT: 802 C.Y.
FILL: 78 C.Y.
BALANCE: 60 C.Y.

SCALE
Horizontal 1"=10'
Vertical N./A.

Office _____
Filmed _____
Traffic _____

Designed By	Drawn By	Checked By
JUMP STREET ENG.	JUMP STREET ENG.	

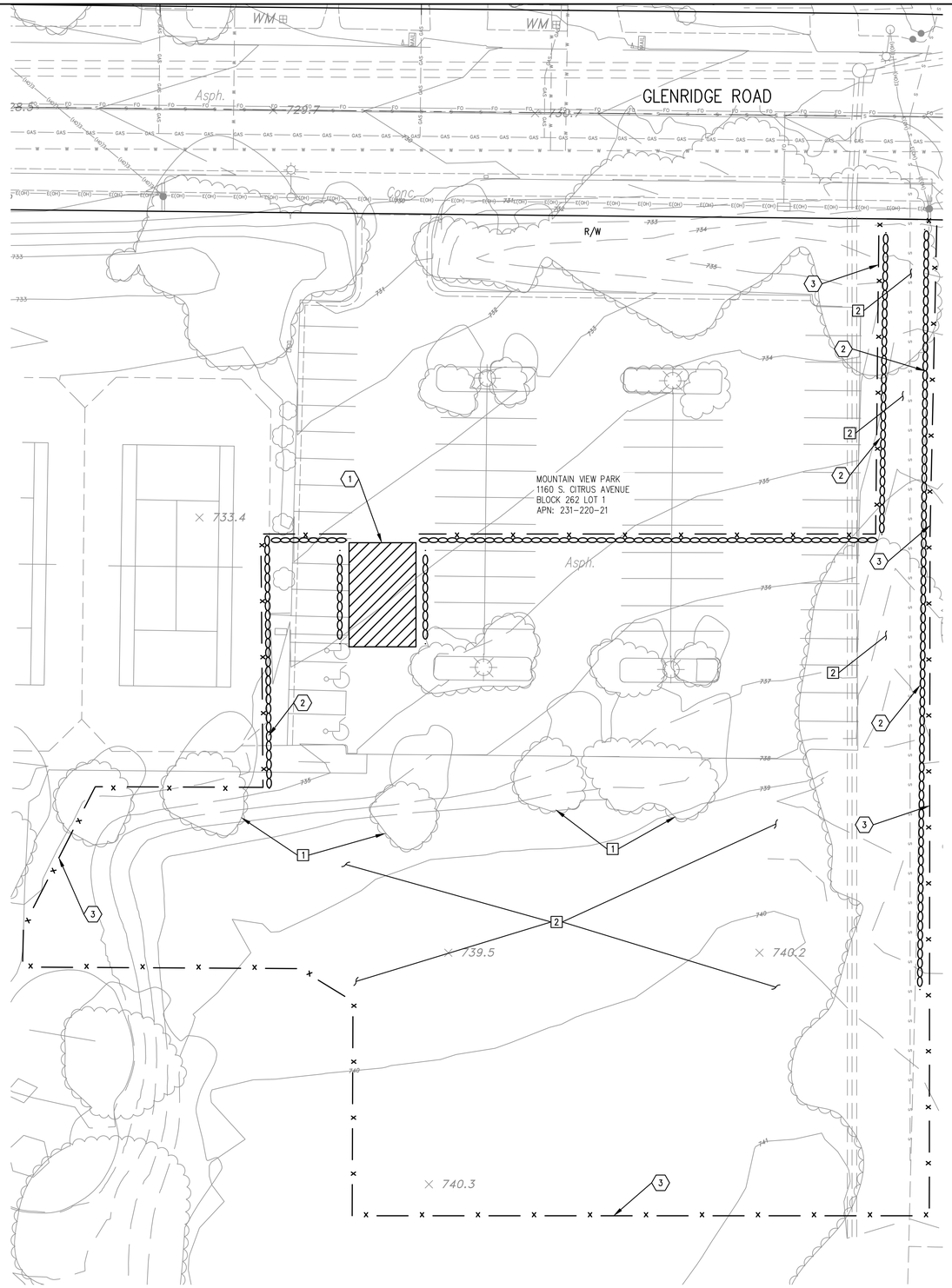
Plans Prepared Under Supervision Of
_____ Date _____
R.C.E. No. XXXXX

CITY of ESCONDIDO ENGINEERING SERVICES
MFRO INTERMEDIATE BOOSTER PUMP STATION

Drawing No.
GPXX-XXXX
Sheet 1 of 4

3/25/21

DEMOLITION PLAN

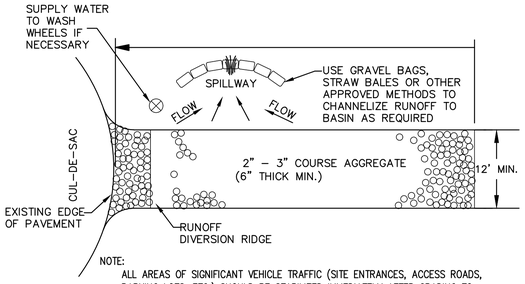


DEMOLITION NOTES:

1. REMOVE EXISTING TREES
2. CLEAR AND GRUB LAND

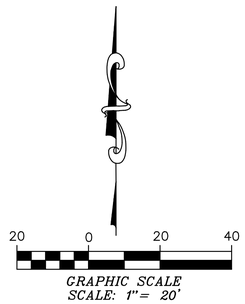
BMP NOTES:

1. STABILIZED CONSTRUCTION ENTRANCE PER CASQA TC-1
2. GRAVEL BAG BARRIER PER CASQA SE-6
3. CONSTRUCTION FENCE

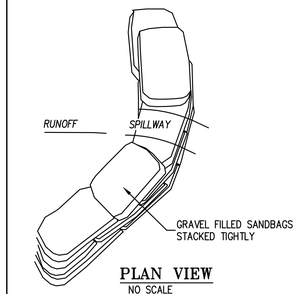


NOTE:
ALL AREAS OF SIGNIFICANT VEHICLE TRAFFIC (SITE ENTRANCES, ACCESS ROADS, PARKING LOTS, ETC.) SHOULD BE STABILIZED IMMEDIATELY AFTER GRADING TO PREVENT EROSION AND CONTROL DUST. SITE ENTRANCES AND EXITS ARE ESPECIALLY IMPORTANT. USE GRAVEL APPROACHES TO LIMIT TRACKING OF SEDIMENT OFFSITE.

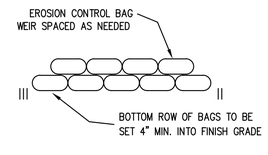
STABILIZED CONSTRUCTION ENTRANCE
NO SCALE
TC-1



GRAPHIC SCALE
SCALE: 1" = 20'



PLAN VIEW
NO SCALE



DETAIL GRAVEL BAG PLACEMENT
NO SCALE

GRAVEL SANDBAGS PER CASQA SC-6

CAUTION!!
EXISTING UNDERGROUND UTILITIES AND FACILITIES SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM AVAILABLE RECORDS WHICH IN MOST CASES ARE SCHEMATIC PLANS. THESE PLANS MAY NOT REFLECT ALL EXISTING UTILITIES. EXACT LOCATION AND DEPTH OF EXISTING UTILITIES ARE UNKNOWN. SUBCONTRACTOR TO CONFIRM THE LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START OF WORK, AND NOTIFY ENGINEER OF WORK OF ANY DISCREPANCIES.

RECORD DRAWING
DAVID V. CARON R.C.E. XXXXX DATE

CITY OF ESCONDIDO ENGINEERING DEPARTMENT
APPROVED
By _____ Date _____
(for City Engineer)
Comments _____
OBTAIN GRADING PERMIT AT FIELD ENGINEERING OFFICE PRIOR TO GRADING

JUMP STREET ENGINEERING INC.

City Project No.
ENG XX-XXXX

CONSTRUCTION RECORD	REFERENCES	Date	By	REVISIONS	App'd	Date
Contractor						
Inspector						
Date Completed						

BENCH MARK
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Bench Mark No. Elevation

EARTHWORK QUANTITIES
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FILL: 78 C.Y.
BALANCE: 60 C.Y.

SCALE
Horizontal 1"=10'
Vertical N./A.

Office
Filmed
Traffic

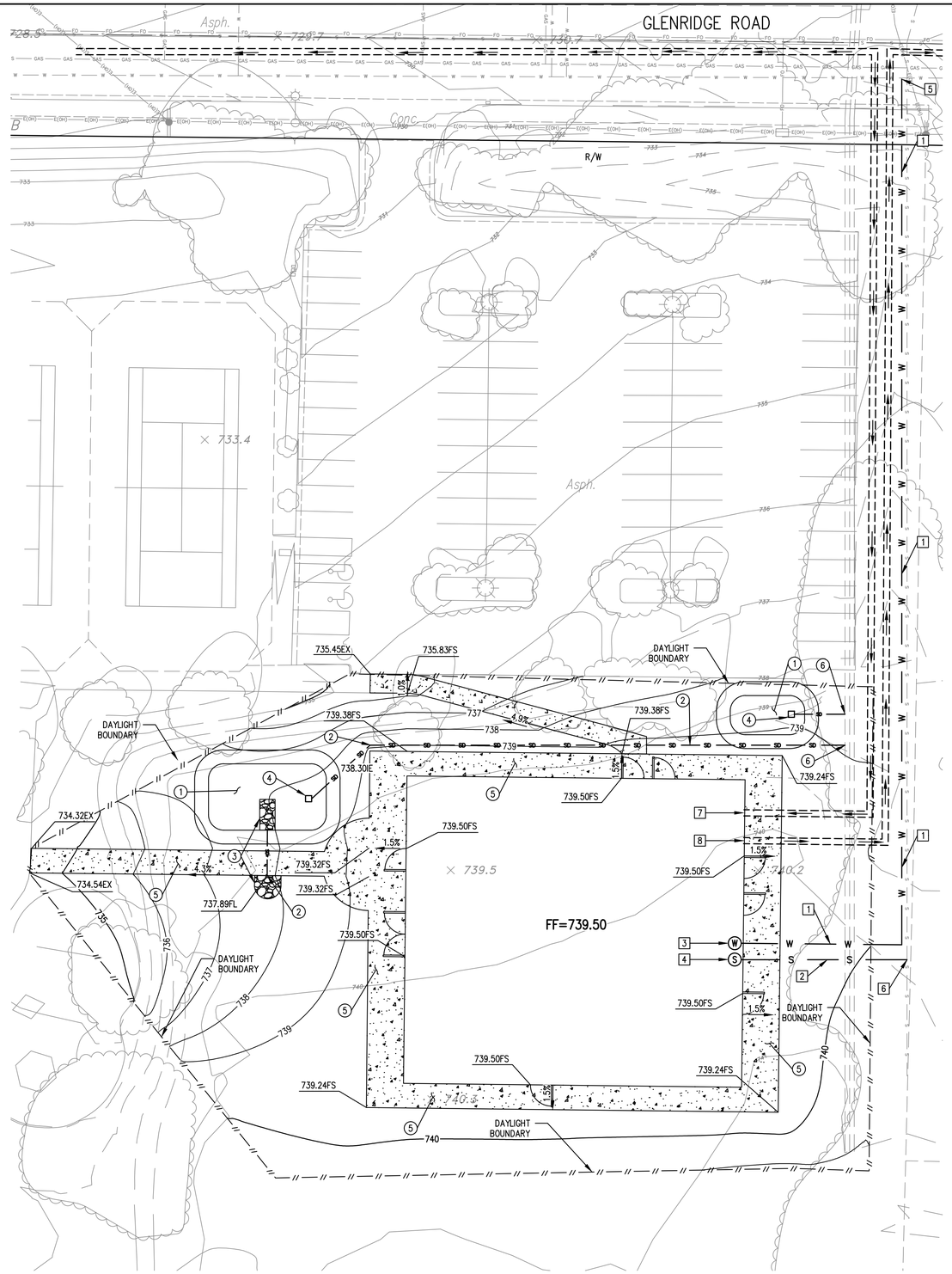
Designed By: JUMP STREET ENG.
Drawn By: JUMP STREET ENG.
Checked By:
Plans Prepared Under Supervision Of
Date
R.C.E. No. XXXXX

CITY of ESCONDIDO ENGINEERING SERVICES
MFRO INTERMEDIATE BOOSTER PUMP STATION

Drawing No.
GPXX-XXXX
Sheet 2 of 4

3/25/21

PRELIMINARY GRADING PLAN



CONSTRUCTION NOTES:

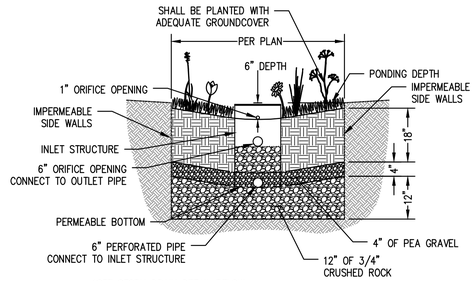
1. CONSTRUCT BIOFILTRATION BASIN PER DETAIL
2. CONSTRUCT 6" HDPE STORM DRAIN
3. CONSTRUCT RIPRAP
4. CONSTRUCT STORM DRAIN INLET
5. CONSTRUCT 4" CONCRETE SIDEWALK PER SDRSD G-7
6. CONSTRUCT STORM DRAIN CONNECTION TO EXISTING

UTILITY NOTES:

1. CONSTRUCT WATER LINE
2. CONSTRUCT SEWER LINE
3. CONSTRUCT WATER SERVICE
4. CONSTRUCT SEWER SERVICE
5. CONSTRUCT WATER CONNECTION TO EXISTING
6. CONSTRUCT SEWER CONNECTION TO EXISTING
7. CONSTRUCT 24" DIP PIPE INLET
8. CONSTRUCT 24" DIP PIPE OUTLET

20 0 20 40

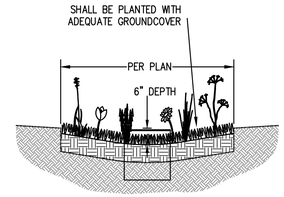
GRAPHIC SCALE
SCALE: 1"= 20'



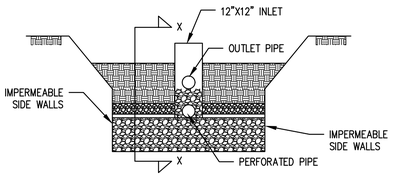
*SEE STORM DRAIN DETAIL BELOW

*ENGINEERED SOIL' LAYER SHALL BE MINIMUM 18" DEEP 'SANDY LOAM' SOIL MIX WITH NO MORE THAN 5% CLAY CONTENT. THE MIX SHALL CONTAIN 50-60% SAND, 20-30% COMPOST OR HARDWOOD MULCH, AND 20-30% TOPSOIL.

BIOFILTRATION BASIN
N.T.S.



BIO-SWALE
N.T.S.



STORM DRAIN INLET
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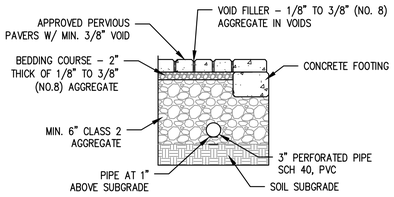


NOTE:

DETAIL ABOVE IS CONCEPTUAL. FINAL DESIGN TO BE COMPLETED PER SOILS ENGINEERS RECOMMENDATIONS WITH CONSTRUCTION DOCUMENTS.

PERMEABLE PAVERS DETAIL OR EQUIVALENT
N.T.S.

CAUTION!!

EXISTING UNDERGROUND UTILITIES AND FACILITIES SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM AVAILABLE RECORDS WHICH IN MOST CASES ARE SCHEMATIC PLANS. THESE PLANS MAY NOT REFLECT ALL EXISTING UTILITIES. EXACT LOCATION AND DEPTH OF EXISTING UTILITIES ARE UNKNOWN. SUBCONTRACTOR TO CONFIRM THE LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START OF WORK, AND NOTIFY ENGINEER OF WORK OF ANY DISCREPANCIES.

RECORD DRAWING

DAVID V. CARON R.C.E. XXXXX DATE

CITY OF ESCONDIDO ENGINEERING DEPARTMENT
APPROVED
By _____ Date _____
(for City Engineer)
Comments _____
OBTAIN GRADING PERMIT AT FIELD ENGINEERING OFFICE PRIOR TO GRADING

JUMP STREET ENGINEERING INC.

City Project No.
ENG XX-XXXX

CONSTRUCTION RECORD	REFERENCES	Date	By	REVISIONS	App'd	Date
Contractor						
Inspector						
Date Completed						

BENCH MARK
DESCRIPTION:
Bench Mark No. Elevation

EARTHWORK QUANTITIES
CUT: 802 C.Y.
FILL: 78 C.Y.
BALANCE: 60 C.Y.

SCALE
Horizontal
1"=10'
Vertical
N./A.

Office
Filmed
Traffic

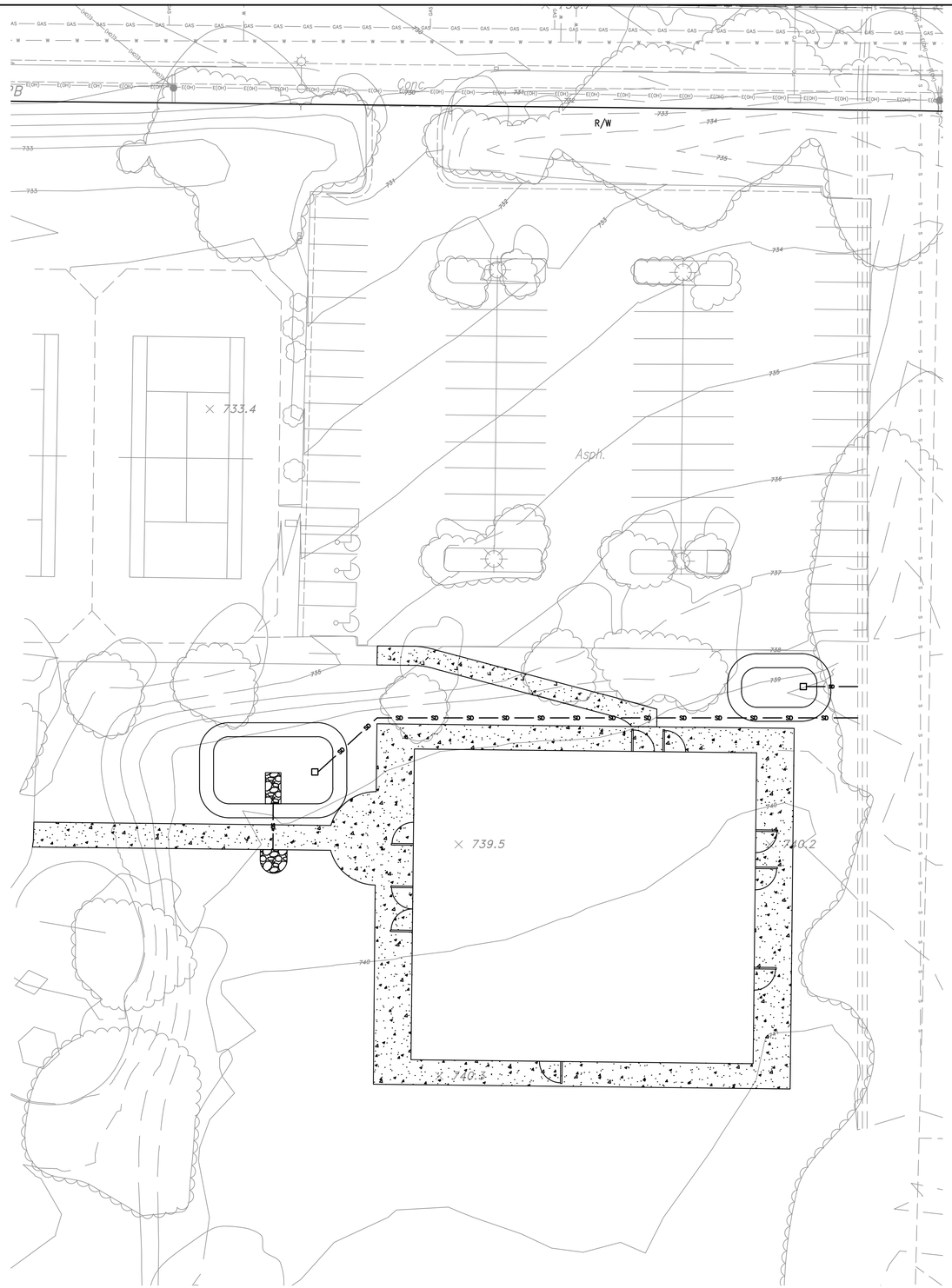
Designed By: JUMP STREET ENG.
Drawn By: JUMP STREET ENG.
Checked By:
Plans Prepared Under Supervision Of
Date
R.C.E. No. XXXXX

CITY of ESCONDIDO ENGINEERING SERVICES
MFRO INTERMEDIATE BOOSTER PUMP STATION

Drawing No.
GPXX-XXXX
Sheet 3 of 4

3/25/21

EROSION CONTROL PLAN



CONSTRUCTION NOTES:

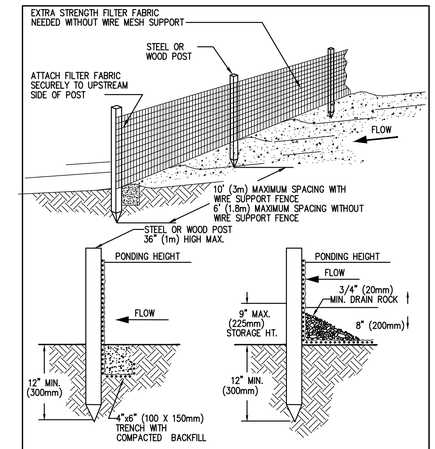
1. STABILIZED CONSTRUCTION ENTRANCE PER CASQA TC-1
2. GRAVEL BAGS PER CASQA SE-6
3. CONSTRUCTION FENCE
4. SILT FENCE PER CASQA SE-1

GENERAL SITE MANAGEMENT

DESCRIPTION	SYMBOL
MATERIAL DELIVERY & STORAGE	WM-1
MATERIAL HANDLING AND USE	WM-2
STOCKPILE MANAGEMENT	WM-3
SOLID WASTE MANAGEMENT	WM-5
CONCRETE WASTE MANAGEMENT	WM-8
SANITARY WASTE MANAGEMENT	WM-9
STREET SWEEPING	SE-7

20 0 20 40

GRAPHIC SCALE
SCALE: 1" = 20'



TRENCH DETAIL
NO SCALE

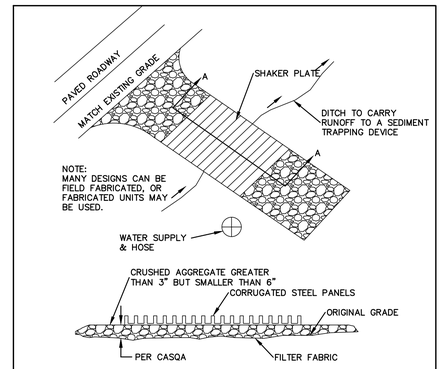
INSTALLATION WITHOUT TRENCHING
NO SCALE

NOTES:
SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9" (225mm) MAXIMUM RECOMMENDED STORAGE HEIGHT.

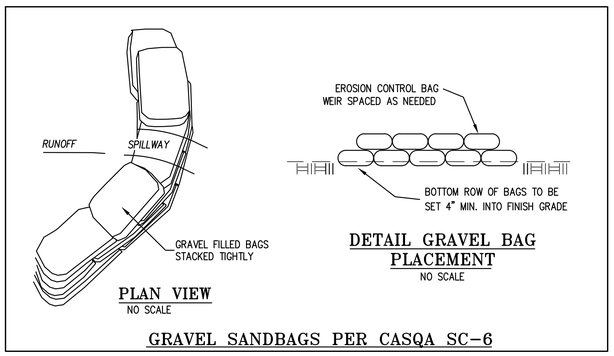
REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

SILT FENCE PER CASQA SC-1
NOT TO SCALE



SECTION A-A
NO SCALE

CONSTRUCTION ENTRANCE PER CASQA TC-1



PLAN VIEW
NO SCALE

DETAIL GRAVEL BAG PLACEMENT
NO SCALE

GRAVEL SANDBAGS PER CASQA SC-6

CAUTION!!
EXISTING UNDERGROUND UTILITIES AND FACILITIES SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM AVAILABLE RECORDS WHICH IN MOST CASES ARE SCHEMATIC PLANS. THESE PLANS MAY NOT REFLECT ALL EXISTING UTILITIES. EXACT LOCATION AND DEPTH OF EXISTING UTILITIES ARE UNKNOWN. SUBCONTRACTOR TO CONFIRM THE LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START OF WORK, AND NOTIFY ENGINEER OF WORK OF ANY DISCREPANCIES.

RECORD DRAWING
DAVID V. CARON R.C.E. XXXXX DATE

CITY OF ESCONDIDO ENGINEERING DEPARTMENT
APPROVED
By _____ Date _____
(for City Engineer)
Comments _____
OBTAIN GRADING PERMIT AT FIELD ENGINEERING OFFICE PRIOR TO GRADING

JUMP STREET ENGINEERING INC.

City Project No.
ENG XX-XXXX

CONSTRUCTION RECORD	REFERENCES	Date	By	REVISIONS	App'd	Date
Contractor						
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Date Completed						

BENCH MARK
DESCRIPTION:
Bench Mark No. Elevation

EARTHWORK QUANTITIES
CUT: 802 C.Y.
FILL: 78 C.Y.
BALANCE: 60 C.Y.

SCALE
Horizontal 1"=10'
Vertical N./A.

Office _____
Filmed _____
Traffic _____

Designed By JUMP STREET ENG.
Drawn By JUMP STREET ENG.
Checked By
Plans Prepared Under Supervision Of _____ Date _____
R.C.E. No. XXXXX

CITY of ESCONDIDO ENGINEERING SERVICES
MFRO INTERMEDIATE BOOSTER PUMP STATION

Drawing No.
GPXX-XXXX
Sheet 4 of 4

3/25/21

Appendix A - Structural Assumptions

TABLE 1607.1
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
1. Apartments (see residential)	—	—
2. Access floor systems		
Office use	50	2,000
Computer use	100	2,000
3. Armories and drill rooms	150[m]	—
4. Assembly areas		
Fixed seats (fastened to floor)	60[m]	
Follow spot, projections and control rooms	50	
Lobbies	100[m]	—
Movable seats	100[m]	
Stage floors	150[m]	
Platforms (assembly)	100[m]	
Other assembly areas	100[m]	
5. Balconies and decks[h]	Same as occupancy served	—
6. Catwalks	40	300
7. Cornices	60	—
8. Corridors		
First floor	100	
Other floors	Same as occupancy served except as indicated	—
9. Dining rooms and restaurants	100[m]	—
10. Dwellings (see residential)	—	—
11. Elevator machine room and control room grating (on area of 2 inches by 2 inches)	—	300
12. Finish light floor plate construction (on area of 1 inch by 1 inch)	—	200
13. Fire escapes	100	
On single-family dwellings only	40	—
14. Garages (passenger vehicles only)	40[m]	Note a
Trucks and buses	See Section 1607.7	
15. Handrails, guards and grab bars	See Section 1607.8	
16. Helipads	See Section 1607.6	
17. Hospitals		
Corridors above first floor	80	1,000
Operating rooms, laboratories	60	1,000
Patient rooms	40	1,000
18. Hotels (see residential)	—	—
19. Libraries		
Corridors above first floor	80	1,000
Reading rooms	60	1,000
Stack rooms	150[b, m]	1,000
20. Manufacturing		
Heavy	250[m]	3,000
Light	125[m]	2,000
21. Marquees, except one- and two-family dwellings	75	—
22. Office buildings		
Corridors above first floor	80	2,000
File and computer rooms shall be designed for heavier loads based on anticipated occupancy	—	—
Lobbies and first-floor corridors	100	2,000
Offices	50	2,000

(continued)

TABLE 1607.1—continued
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
23. Penal institutions		
Cell blocks	40	—
Corridors	100	
24. Recreational uses:		
Bowling alleys, poolrooms and similar uses	75[m]	
Dance halls and ballrooms	100[m]	
Gymnasiums	100[m]	
Ice skating rink	250[m]	—
Reviewing stands, grandstands and bleachers	100[c, m]	
Roller skating rink	100[m]	
Stadiums and arenas with fixed seats (fastened to floor)	60[c, m]	
25. Residential		
One- and two-family dwellings		
Uninhabitable attics without storage[i]	10	
Uninhabitable attics with storage[i, j, k]	20	
Habitable attics and sleeping areas[k]	30	
Canopies, including marquees	20	—
All other areas	40	
Hotels and multifamily dwellings		
Private rooms and corridors serving them	40	
Public rooms[m] and corridors serving them	100	
26. Roofs		
All roof surfaces subject to maintenance workers		300
Awnings and canopies:		
Fabric construction supported by a skeleton structure	5 Nonreducible	
All other construction, except one- and two-family dwellings	20	
Ordinary flat, pitched, and curved roofs (that are not occupiable)	20	
Primary roof members exposed to a work floor:		
Single panel point of lower chord of roof trusses or any point along primary structural members supporting roofs over manufacturing, storage warehouses, and repair garages		2,000
All other primary roof members		300
Occupiable roofs:		
Roof gardens	100	
Assembly areas	100[m]	
All other similar areas	Note 1	Note 1
27. Schools		
Classrooms	40	1,000
Corridors above first floor	80	1,000
First-floor corridors	100	1,000
28. Scuttles, skylight ribs and accessible ceilings	—	200
29. Sidewalks, vehicular driveways and yards, subject to trucking	250[d, m]	8,000[e]

(continued)

TABLE 1607.1—continued
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
30. Stairs and exits One- and two-family dwellings All other	 40 100	 300[f] 300[f]
31. Storage warehouses (shall be designed for heavier loads if required for anticipated storage) Heavy Light	 250[m] 125[m]	 —
32. Stores Retail First floor Upper floors Wholesale, all floors	 100 75 125[m]	 1,000 1,000 1,000
33. Vehicle barriers	See Section 1607.8.3	
34. Walkways and elevated platforms (other than exitways)	60	—
35. Yards and terraces, pedestrians	100[m]	—
36. [OSHPD 2] Storage racks and wall-hung cabinets.	*Total loads[n]*	—

For SI: 1 inch = 25.4 mm, 1 square inch = 645.16 mm^2, 1 square foot = 0.0929 m^2, 1 pound per square foot = 0.0479 kN/m^2, 1 pound = 0.004448 kN, 1 pound per cubic foot = 16 kg/m^3.

a. Floors in garages or portions of buildings used for the storage of motor vehicles shall be designed for the uniformly distributed live loads of this Table or the following concentrated loads: (1) for garages restricted to passenger vehicles accommodating not more than nine passengers, 3,000 pounds acting on an area of $4^1/_2$ inches by $4^1/_2$ inches; (2) for mechanical parking structures without slab or deck that are used for storing passenger vehicles only, 2,250 pounds per wheel.

b. The loading applies to stack room floors that support nonmobile, double-faced library book stacks, subject to the following limitations:
   1. The nominal book stack unit height shall not exceed 90 inches;
   2. The nominal shelf depth shall not exceed 12 inches for each face; and
   3. Parallel rows of double-faced book stacks shall be separated by aisles not less than 36 inches wide.

c. Design in accordance with ICC 300.

d. Other uniform loads in accordance with an approved method containing provisions for truck loadings shall be considered where appropriate.

e. The concentrated wheel load shall be applied on an area of 4.5 inches by 4.5 inches.

f. The minimum concentrated load on stair treads shall be applied on an area of 2 inches by 2 inches. This load need not be assumed to act concurrently with the uniform load.

g. Where snow loads occur that are in excess of the design conditions, the structure shall be designed to support the loads due to the increased loads caused by drift buildup or a greater snow design determined by the building official (see Section 1608).

h. See Section 1604.8.3 for decks attached to exterior walls.

i. Uninhabitable attics without storage are those where the maximum clear height between the joists and rafters is less than 42 inches, or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. This live load need not be assumed to act concurrently with any other live load requirements.

j. Uninhabitable attics with storage are those where the maximum clear height between the joists and rafters is 42 inches or greater, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses.

   The live load need only be applied to those portions of the joists or truss bottom chords where both of the following conditions are met:

   i. The attic area is accessible from an opening not less than 20 inches in width by 30 inches in length that is located where the clear height in the attic is a minimum of 30 inches; and

(continued)

TABLE 1607.1—continued
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS[g]

   ii. The slopes of the joists or truss bottom chords are no greater than two units vertical in 12 units horizontal.

   The remaining portions of the joists or truss bottom chords shall be designed for a uniformly distributed concurrent live load of not less than 10 pounds per square foot.

k. Attic spaces served by stairways other than the pull-down type shall be designed to support the minimum live load specified for habitable attics and sleeping rooms.

l. Areas of occupiable roofs, other than roof gardens and assembly areas, shall be designed for appropriate loads as approved by the building official. Unoccupied landscaped areas of roofs shall be designed in accordance with Section 1607.12.3.

m. Live load reduction is not permitted unless specific exceptions of Section 1607.10 apply.

n. [OSHPD 2] The minimum vertical design live load shall be as follows:

Paper media:

12-inch-deep (305 mm) shelf 33 pounds per lineal foot (482 N/m)
15-inch-deep (381 mm) shelf 41 pounds per lineal foot (598 N/m), or 33 pounds per cubic foot (5183 N/m^3) per total volume of the rack or cabinet, whichever is less.

Film media:

18-inch-deep (457 mm) shelf 100 pounds per lineal foot (1459 N/m), or 50 pounds per cubic foot (7853 N/m^3) per total volume of the rack or cabinet, whichever is less.

Other media:

20 pounds per cubic foot (311 N/m^3) or 20 pounds per square foot (958 Pa), whichever is less, but not less than actual loads.

1607.3 Uniform live loads. The live loads used in the design of buildings and other structures shall be the maximum loads expected by the intended use or occupancy but shall in no case be less than the minimum uniformly distributed live loads given in Table 1607.1.

1607.4 Concentrated live loads. Floors and other similar surfaces shall be designed to support the uniformly distributed live loads prescribed in Section 1607.3 or the concentrated live loads, given in Table 1607.1, whichever produces the greater load effects. Unless otherwise specified, the indicated concentration shall be assumed to be uniformly distributed over an area of $2^1/_2$ feet by $2^1/_2$ feet (762 mm by 762 mm) and shall be located so as to produce the maximum load effects in the structural members.

1607.5 Partition loads. In office buildings and in other buildings where partition locations are subject to change, provisions for partition weight shall be made, whether or not partitions are shown on the construction documents, unless the specified live load is 80 psf (3.83 kN/m^2) or greater. The partition load shall be not less than a uniformly distributed live load of 15 psf (0.72 kN/m^2).

1607.6 Helipads. Helipads shall be designed for the following live loads:

1. A uniform live load, L, as specified below. This load shall not be reduced.
   1.1. 40 psf (1.92 kN/m^2) where the design basis helicopter has a maximum take-off weight of 3,000 pounds (13.35 kN) or less.
   1.2. 60 psf (2.87 kN/m^2) where the design basis helicopter has a maximum take-off weight greater than 3,000 pounds (13.35 kN).

Material Weights

Coverings

Hardwood (1" nominal)	4.0psf
Quarry or Ceramic Tile, 3/4"	10.0psf
Linoleum or Soft Tile	1.5psf
Vinyl Tile 1/8" thick	1.4psf
Soft Tile and Sheet	1.5psf
GypCrete 3/4"	6.5psf

Concrete:

Regular, 1" thick	12.0psf
Reinforced (1-1/2" thick)	17.5psf
Lightweight (1-1/2" thick)	12.5psf
Terrazo (1-1/2" thick)	19.0psf
Cement Finish (per inch thick)	12.0psf

Walls/Partitions

Masonry

Brick 4” thick	38.0psf
Concrete Block 12” thick	90.0psf
Cinder Concrete Block 12” thick	90.0psf
Stucco, 7/8" thick	10.0psf
Hollow Clay Tile (load bearing)	23.0psf
Hollow Clay Tile (nonbearing)	18.0psf
Hollow Gypsum Block 8” thick	26.0psf
Limestone	55.0psf
Terra-cotta Tile	25.0psf
Stone	55.0psf
8” Concrete Wall	100.0 psf
Wood Paneling, 1"	2.5psf

Material Weights

Metal Grid System	0.8psf
Metal Suspension with Tile	1.8psf
Wood Suspension with Tile	2.5psf
Plaster, 1"	8.0psf
Plaster on wood lath, 1"	10.0psf
Plaster on metal lath, 1"	8.5psf

Roofing

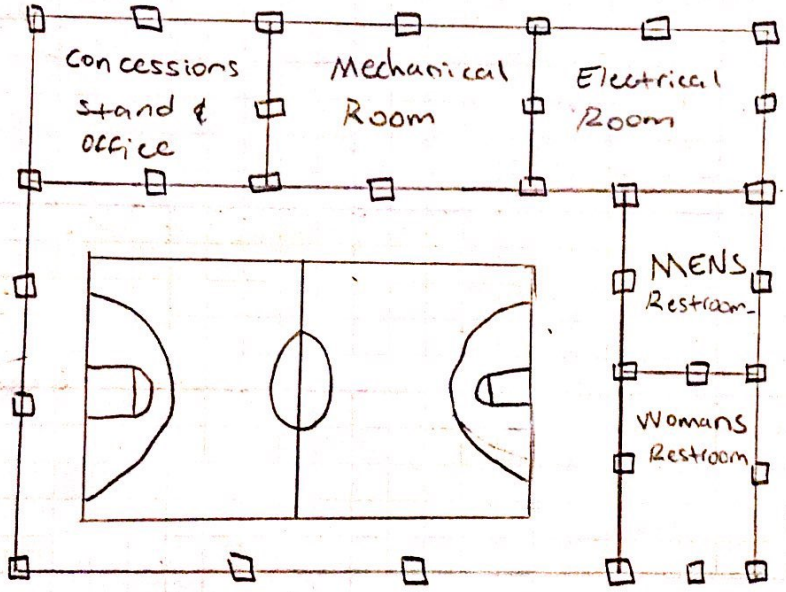
Asphalt Shingles	2.5psf
Wood Shakes	3.0psf
Roll Roofing	1.0psf
Asphalt Shingles, approx 1/4"	2.0psf
Cement asbestos shingles, 3/8"	4.0psf
Clay Tile (add 10psf for mortar)	9.0psf
Ludowici	10.0psf
Roman	12.0psf
Slate, 1/4"	10.0psf
Spanish	19.0psf
Wood, 1"	3.0psf
Cement Tile (add 6psf for mortar)	10.0psf
Corrugated Asbestos/Cement	4.0psf

Composition

235 lb Shingle & Paper	5.0psf
3-ply Ready Roofing	1.0psf
2-15 lb + 1-90lb	1.7psf
3-15 lb + 1-90lb	2.2psf
3-ply + Gravel	5.6psf
4-ply + Gravel	6.0psf
5-ply + Gravel	6.5psf

Appendix B - Structural Calculations

Column Location



Structural calculations

Live load:

Gym: 100 PSF × 90 ft × 60 ft = 540,000 lbs

Pump station Rooms: 250 PSF × 82 × 38 = 779,000 lbs

Restrooms = 100 PSF × 60 × 20 = 120,000 lbs

office / concerission stand = Uniform = 50 PSF × 28 × 38 = 53,200 lbs
Concentrated = 2,000 lbs + 2000 lbs
55,200 lbs

Total live load = 540,000 + 779,000 + 120,000 + 55,200
= 1,494,200 lbs = 1,494.2 kips

Dead load:

Floor
- hardwood Flooring = 4 PSF × 90×60 = 21,600 lbs
- 1" reinforced regular weight concrete = 12.5 PSF × 82×38 = 38,950 lbs
- Carpet & Pad = 2 PSF × 28×38 = 2,128 lbs
- 3/8" ceramic floor tile = 4.7 PSF × 60×20 = 5,640 lbs

walls
- 12" thick Concrete blocks = 90 PSF × 25 × 300 = 675,000 lbs
  675 kips
- 12" thick concrete blocks = 90 PSF × 14 × 248 = 312,480 lbs
  = 312.48 kips
- 12" thick concrete blocks = 90 PSF × 114×14 = 143,640 lbs
  = 143.64 kips

Roof
- Spanish Tile = 19 PSF × 110×100 = 209,000 lbs
  = 209 kips

Total Dead load = 1,408.4 kips

Column calcs

$\phi P_n = 0.65 \times 0.8 \times [(15\times15 - A_{st}) \times 0.85 \times 3 + A_{st} \times 60] \geq 209$ kips

$401.92 \leq (225 - A_{st})(2.55) + (A_{st})(60)$

$-171.83 \leq -2.55 A_{st} + 60 A_{st}$

$A_{st} \geq 2.99 \approx 3\ in^2$

$P_g = 3/15\times15 = 1.33\ \%$ → within ACI code of lim

Steel bar selection: $3 = 8 \cdot \frac{\pi(\frac{x}{2})^2}{4} \rightarrow x = 0.477 = \frac{x^2}{64}$

$x = 6$

8 #6 bars are selected

Clear spacing of bars = $(15.5 - 2\times6/8) = 4.25$ in

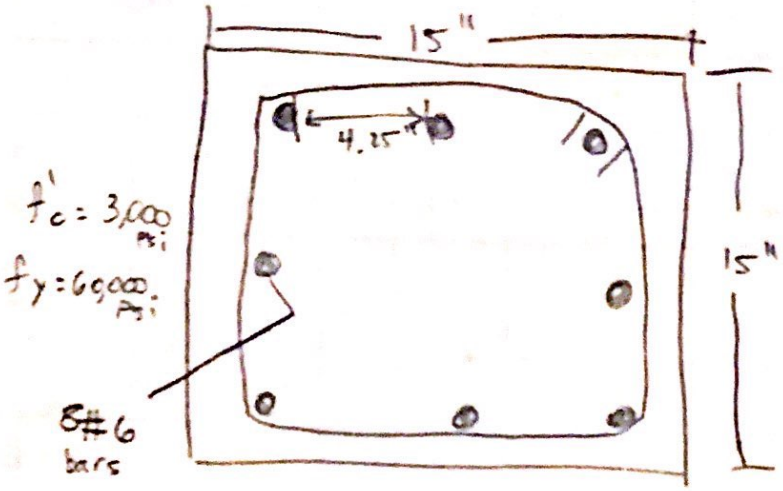
Use #3 ties

$s \leq s_1 = 16 \times (6/8) = 12 \rightarrow s = 12$ in

$s_2 = 48 \times 3/8 = 18$

$s_3 = 15$

cross - section detail :



Actual column cross-sectional design verification

$$\phi P_n = 0.65 \times 0.8 \times \{(15 \times 15 - 3) \times 0.85 \times 3 + 3 \times 60\}$$

$$\phi P_n = 387.9 \text{ KIPS} > 300 \text{ KIPS}$$

✓

Appendix C - Column Locations

Appendix C - Column Locations