



El Dorado Hills

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May 3, 2024

Travis Bohannon
Rancho Murieta Community Services District
P.O. Box 1050
Rancho Murieta, CA 95683

**Subject: Rancho Murieta Community Services District
Dam Inspection Report Evaluation to support the 2024 Capital
Improvement Planning Efforts**

Dear Travis,

Per the District's recent request, Lumos & Associates has completed a preliminary review of the 2024 inspection reports from the California Division of Safety of Dams for the dams within the jurisdiction of RMCS D (Granlees, Chesbro, Calero, Clementia, Michigan Bar No. 1, and Michigan Bar No. 2). Based on the information provided in these reports, Lumos has developed a list of annual maintenance activities and future rehabilitation projects that the District may consider implementing to address the items and deficiencies noted in the inspection reports.

This list is not intended to be an exhaustive list of all necessary improvements to the dams, however it provides our recommendations based upon the limited information available from the 2024 inspection reports from the Division of Safety of Dams, provided in Attachment A. It is entirely possible that future Dam Safety inspections and additional necessary background information could require additional repairs or rehabilitations not mentioned in this list.

Yearly:

- Granlees Dam
 - Continue removal of vegetation
- Chesbro Dam
 - Continue removal of vegetation
 - Continue rodent abatement efforts
- Calero Dam
 - Remove the sporadic woody vegetation and small trees as part of their regular maintenance activities.
 - Continue with rodent abatement efforts and collapse and backfill burrows with compacted material when encountered.
- Clementia Dam
 - Continue removing sporadic woody vegetation from the dam faces and crest as needed.
 - Continue with rodent abatement efforts and collapse and backfill burrows with compacted material when encountered.
- Michigan Bar No. 1 Dam

- Sporadic oak trees and berry vine growth remain on the dam, and need to be removed as part of the regular maintenance activities.
- Continue with rodent abatement efforts and collapse and backfill burrows with compacted material when encountered.
- Michigan Bar No. 2 Dam
 - Continue removing sporadic woody vegetation from the dam faces and crest as needed.
 - Continue with rodent abatement efforts and collapse and backfill burrows with compacted material when encountered.

2024-2028:

- Granlees Dam
 - Vegetation at the downstream left groin of the South Dam needs to be removed
 - Schedule inspection for July/August 2024 to observe dam crests while not spilling. Dam to be inspected for seepage at this time.
- Chesbro Dam
 - Clear the fallen limbs from the oak tree on the downstream left groin of the North Dam.
 - Remove the berry vine growth from the upstream face of the Middle Dam.
- Calero Dam
 - RMCSD needs to investigate the sudden drop in measured seepage flow at Sump M1 to determine if the system is functioning properly.
 - Establish an access agreement with adjacent property owner to maintain the outfall channels for Sumps M1 and M2
 - The fallen oak tree needs to be removed and RMCSD needs to remove the sporadic woody vegetation and small trees as part of their regular maintenance activities.
 - Shallow low spots with ponded water were present on the crest during this inspection but did not constitute a dam safety issue.
 - RMCSD to mark the East Dam outfall with a T-post or something similar for easy identification during inspections.

2029-2033:

- Michigan Bar No. 1 Dam
 - Repair cracked joint on spillway of Reservoir No. 1. Crack does not pose a dam safety risk at this time since dam only approved to impound water to an elevation that is 0.59 ft below spillway crest.

2034-2038:

- Granlees Dam
 - Full rehabilitation of dam (Existing concrete spalling on North Dam and longstanding transverse crack near the left abutment of the South Dam. Age of dam and state of concrete may call for full rehabilitation, especially if seepage through dam is present.)
 - If seepage is present during July/August 2024 inspection, recommended to do full rehabilitation within 2024-2028. If seepage is not present, recommended to save for full rehabilitation within 10-15 years.

2039-2044:

- General note:
 - After rehabilitation of Granlees Dam, RMCS D should start saving for a full rehabilitation of their high hazard dams (Calero and Chesbro), due to the age of those embankments and the possible ramifications of a catastrophic failure.

Lumos & Associates is currently in the process of developing Class 5 estimates for the projects highlighted above for inclusion in the upcoming Capital Improvement Plan. Other recommended investigations that can be performed to determine the state of structures include the following:

- In-situ geotechnical testing (establish relative compaction of material in-situ, establish phreatic line, depth to bedrock)
- Multi-beam bathymetric survey to determine storage capacity and if it's been reduced due to sediment build up. If it has, will determine which reservoirs need dredging.

If you have any questions, please do not hesitate to contact myself or Chelsea Cluff, P.E. at 916.980.8228.

Sincerely,



Cami Jackson, P.E.
Project Manager

CC: Michael Fritschi, RMCS D
Chelsea Cluff, P.E., Senior Engineer

Attachment A: 2024 Inspection Reports from the Division of Safety of Dams

Attachment A: 2024 Inspection Reports from the Division of Safety of Dams

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Chesbro Dam No. 1450-2 County Sacramento
Type of Dam Earth Type of Spillway Concrete pipe
Water is ~3 feet below spillway crest and ~8.1 feet below dam crest.

Weather Conditions Clear and warm

Contacts Made Ed McMurray, Mike Foeldi, Ryan Wenker, and Travis Bohannon with Rancho Murrieta Community Services District (RMCS D)
Reason for Inspection Maintenance inspection

Important Observations, Recommendations or Actions Taken

The maintenance items listed in the last inspection report had been satisfactorily completed. The following items were identified during this inspection and need to be completed as part of the regular maintenance activities:

- Clear the fallen limbs from the oak tree on the downstream left groin of the North Dam.
- Remove the berry vine growth from the upstream face of the Middle Dam.

Instrumentation

As requested, the latest instrumentation report included:

- long-term data plots for all historical survey movement,
- short-term and long-term data plots for seepage, and reservoir data,
- plan view maps of the dam showing the instrumentation locations.

Conclusions

From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.

Observations and Comments

<u>Dam</u>	<p>The reservoir has three embankments, the North Dam, Middle Dam, and South Dam. I walked the crests, downstream groins, and toes of each dam. The visible portions of the upstream and downstream faces were uniform and showed no signs of instability or distress (Photos 1-5).</p> <p>Vegetation control on the dams was generally satisfactory. As requested, the mature tree located near the toe of the North Dam had been pruned up. The young trees and woody vegetation on the downstream face and toe of the Middle Dam noted during the last inspection had also been removed. During this inspection, it was noted that large limbs had fallen from the oak tree located in the left downstream groin of the North Dam that need to be removed (Photo 6). Berry vine growth was observed on the upstream face of the Middle Dam that needs to be removed (Photo 1). No major rodent activity was observed, but RMCS D needs to continue with their abatement efforts and collapse and backfill burrows with compacted material when encountered.</p>
<u>Spillway</u>	<p>The spillway approach, control section, and concrete pipe were clear and unobstructed. As requested, the bush in the approach channel had been removed (Photo 7). There were no stoplogs in the spillway structure in accordance with the Certificate of Approval which requires the stoplogs be removed between October 1 and April 15 of each year, both dates inclusive.</p>

Photos taken? Yes No
cc for Owner/Book

Inspected by T.W. Banks TB 2/23/2024
Date of Inspection 1/25/2024 TJ 2/23/2024
Date of Report 2/15/2024

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUSName of Dam Chesbro Dam No. 1450-2Date of Inspection 1/25/2024**Observations and Comments**

<u>Outlet</u>	The low-level outlet is controlled by an upstream slide gate and a downstream butterfly valve. The California Water Code section 6102.5(c) requires that the upstream and downstream controls be fully cycled by the owner annually, and in the presence of DSOD every three years. Both controls were fully exercised during this inspection without issue. They are due to be cycled in the presence of DSOD again during the 2026-2027 inspection cycle.
<u>Seepage</u>	<p>The dam embankments were damp due to recent precipitation, but no other signs of seepage (i.e. live flow, overly saturated ground, abnormally green vegetation) were observed on the downstream faces, groins or toes of the dams.</p> <p>Each dam was constructed with a chimney and blanket drain system. At the North Dam, this collected seepage daylights at a manhole drain at the toe. Standing water was present at the outfall but there was no live flow.</p> <p>Seepage at the Middle Dam is collected in a sump and the sump pump is metered. Sump readings are recorded monthly and submitted with the annual instrumentation submittals.</p> <p>Seepage at the South Dam is collected at three manhole drains along the toe. Each manhole drain was observed to be dry.</p> <p>These seepage observations are consistent with past inspections at similar reservoir levels.</p>
<u>Instr.</u>	<p>Instrumentation at the dam consists of one seepage sump pump and six survey monuments. Four manhole drains located at the North Dam and South Dam are monitored visually for flow but are not measured. The latest instrumentation submittal was received under cover letter dated March 23, 2023, and covers data through the 2022 calendar year.</p> <p><u>Seepage:</u> There is one sump pump located at the toe of the Middle Dam. Sump readings are recorded monthly. Data is provided from 2004 through 2022. Seepage measured at the sump generally follows changes in the reservoir level, with a historical max at the Middle Dam sump around 575,000 gallons per month (~13.3 GPM). This behavior continued in 2022 and the Middle Dam sump remained within its historical range, with an annual max around 175,000 gallons per month (~4.1 GPM).</p> <p><u>Survey:</u> There are six survey monuments, three on the crest of the North and three on the crest of the Middle Dam. The monuments are surveyed every five years for vertical and horizontal displacements. The latest survey was conducted in April 2020. The data from the latest survey was reviewed in the inspection report dated April 15, 2022, with no unusual trends noted. The next survey is due to be performed in 2025.</p> <p><u>Conclusion:</u> The instrumentation data indicate the dam is performing satisfactorily, and no additional instrumentation is deemed necessary at this time.</p>

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Chesbro

Dam No. 1450-2

Date of Inspection 1/25/2024



Photo 1: View of the upstream face of the Middle Dam (near) and South Dam (far) from the left side of the Middle Dam looking towards the right. The berry vine growth in the red circle needs to be removed.



Photo 2: View of the downstream face of the South Dam from the right side looking towards the left.

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Chesbro Dam No. 1450-2

Date of Inspection 1/25/2024



Photo 3: View of the downstream face of the Middle Dam from the right groin near the toe looking towards the left groin.



Photo 4: View of the upstream face of the North Dam from the left side looking towards the right.

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Chesbro

Dam No. 1450-2

Date of Inspection 1/25/2024



Photo 5: View of the downstream face of the North Dam from the right side looking towards the left.



Photo 6: View of the downstream face of the North Dam from the right groin looking towards the toe. The fallen limbs shown by the red circle need to be removed.

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Chesbro

Dam No. 1450-2

Date of Inspection 1/25/2024



Photo 7: View of the spillway approach and control section.

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Calero Dam No. 1450-3 County Sacramento
Type of Dam Earth Type of Spillway Concrete pipe
Water is ~6 feet below spillway crest and ~11 feet below dam crest.

Weather Conditions Clear and warm

Contacts Made Ed McMurray, Mike Foeldi, Ryan Wenker, and Travis Bohannon with Rancho Murrieta Community Services District (RMCS D)
Reason for Inspection Maintenance inspection

Important Observations, Recommendations or Actions Taken

As requested, RMCS D had removed the shrub on the upstream faces of the East Dam, removed the vegetation and grass growth in the spillway approach, and removed the accessible vegetation from the outfall channel at Sump M1.

The status of the outfall channels for Sumps M1 and M2 were discussed during this inspection. Both sumps drain onto an adjacent property downstream of the Main Dam. A portion of the Sump M1 channel is accessible, but the outfall pipe for Sump M2 is located on the adjacent property. RMCS D is currently working on contacting the adjacent property owner to establish an access agreement to maintain the outfall channels for Sumps M1 and M2.

The following maintenance items were identified during this inspection:

- The downed oak tree on the downstream face of the Main Dam needs to be removed.
- Sporadic woody vegetation and small tree growth needs to be removed from the Main Dam.

Instrumentation

RMCS D needs to investigate the sudden drop in measured seepage flow at Sump M1 to determine if the system is functioning properly.

As requested, the latest instrumentation report included:

- long-term data plots for all historical survey movement,
- short-term and long-term data plots for seepage, piezometer, and reservoir data,
- plan view maps of the dam showing the instrumentation locations,
- and figures of dam cross sections showing each piezometer sensing interval, and the piezometer top of casing and tip elevations.

Conclusions

From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.

Observations and Comments

<u>Dam</u>	I walked the crests, downstream groins, and toes of the Main and East Dams. The visible portions of the upstream and downstream faces were uniform and showed no signs of instability or distress (Photos 1-4). The status of the crest road and previously reported potholes were discussed during this inspection. RMCS D reportedly placed gravel along the crest road since the last inspection and does so on an as needed basis. Shallow low spots with ponded water were present on the crest during this inspection but did not constitute a dam safety issue.
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Photos taken? Yes x No _____
cc for Owner/Book

Inspected by T.W. Banks TB 2/23/2024
Date of Inspection 1/25/2024 TJ 2/23/2024
Date of Report 2/15/2024

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam CaleroDam No. 1450-3Date of Inspection 1/25/2024

Observations and Comments

	<p>Vegetation control was satisfactory apart from sporadic small woody vegetation growth on the Main Dam and the fallen oak tree at the toe of the Main Dam that was covering a portion of the downstream face (Photo 5). The fallen oak tree needs to be removed and RMCS D needs to remove the sporadic woody vegetation and small trees as part of their regular maintenance activities. No major rodent activity was observed, but RMCS D needs to continue with their abatement efforts and collapse and backfill burrows with compacted material when encountered.</p>
<u>Spillway</u>	<p>The spillway control section, and concrete pipe were clear and unobstructed (Photo 6). The concrete surfaces were in satisfactory condition. As requested, RMCS D had removed the vegetation and grass growth in the spillway approach. There were no stoplogs in the spillway structure in accordance with the Certificate of Approval which requires the stoplogs be removed between October 1 and April 15 of each year, both dates inclusive.</p>
<u>Outlet</u>	<p>The low-level outlet is controlled by an upstream slide gate and a downstream sluice gate. The California Water Code section 6102.5(c) requires that the upstream and downstream controls be fully cycled by the owner annually, and in the presence of DSOD every three years. Both controls were fully exercised during this inspection without issue. They are due to be cycled in the presence of DSOD again during the 2026-2027 inspection cycle.</p>
<u>Seepage</u>	<p>The dam embankments were damp due to recent precipitation, but no other signs of seepage (i.e. live flow, overly saturated ground, abnormally green vegetation) were observed on the downstream faces, groins or toes of the dams.</p> <p>The Main Dam is equipped with two sumps (Sumps M1 and M2) and the East Dam is equipped with one (East Dam). All were tested during this inspection and were in good working condition. Sump readings are recorded monthly and submitted with the annual instrumentation submittals.</p> <p>The status of the outfall channels for Sumps M1 and M2 were discussed during this inspection. Both sumps drain onto an adjacent property downstream of the Main Dam. A portion of the Sump M1 channel is accessible, but the outfall pipe for Sump M2 is located on the adjacent property. RMCS D is currently working on contacting the adjacent property owner to establish an access agreement to maintain the outfall channels for Sumps M1 and M2. The outfall for the East Dam is located in the upstream right groin of the East Dam and was observed to be clear and unobstructed. I suggested that RMCS D mark the East Dam outfall with a T-post or something similar for easy identification during inspections.</p>
<u>Instr.</u>	<p>Instrumentation at the dam consists of two piezometers, three seepage sump pumps, and eleven survey monuments. The latest instrumentation submittal was received under cover letter dated March 23, 2023, and covers data through the 2022 calendar year.</p> <p><u>Piezometers:</u> There are two open standpipe piezometers (P-3 and P-4) aligned near the maximum section of the Main Dam. P-3 is located in the crest, upstream of the chimney drain. P-4 is located in the downstream bench, downstream of the chimney drain and above the blanket drain.</p> <p>Since installation in 2008, P-3 has shown minor fluctuations corresponding to changes in reservoir level, and generally fluctuates between 15 to 20 feet above its tip elevation. This is reasonable given its location upstream of the chimney drain.</p> <p>Since installation in 2008, P-4 has shown little to no fluctuation, remaining within a few feet of its tip</p>

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUSName of Dam CaleroDam No. 1450-3Date of Inspection 1/25/2024**Observations and Comments**

elevation. This is reasonable given its location downstream of the chimney drain and above the blanket drain and suggests the two drains are functioning as intended.

Seepage: There are two sump pumps at the Main Dam (Sumps M1 and M2) and one sump pump at the East Dam (East Dam) that collect seepage. Sump pump data at each sump is collected monthly and plotted as cumulative flow for the month. Data for each sump is provided from 2004 through 2022.

Sump M1 generally records the most flow of the three sumps with response to changes in reservoir level with a historical max around 400,000 gallons per month (~9.3 GPM). Sump M1 showed an appreciable drop in measured flow in 2022. Sump M1 has exhibited similar behavior prior to 2006, but the owner should investigate the drop in flow to ensure the flow meter is functioning correctly.

Sump M2 shows fluctuations that correspond to changes in reservoir level, with a historical max around 80,000 gallons per month (~1.9 GPM). This behavior continued in 2022 and Sump M2 remained within its historical range, with an annual max around 75,000 gallons per month (~1.7 GPM).

East Dam also shows fluctuations that correspond to changes in reservoir level, with a historical max around 50,000 gallons per month (~1.2 GPM). This behavior continued in 2022 and East Dam remained within its historical range, with an annual max around 25,000 gallons per month (~0.6 GPM).

Survey: There are eleven survey monuments located along the crests of the Main and East Dams. The monuments are surveyed every five years for vertical and horizontal displacements. The latest survey was conducted in April 2020. The data from the latest survey was reviewed in the inspection report dated April 15, 2022, with no unusual trends noted. The next survey is due to be performed in 2025.

Conclusion: The instrumentation data indicate the dam is performing satisfactorily, and no additional instrumentation is deemed necessary at this time. RMCSD needs to investigate the sudden drop in measured seepage flow at Sump M1 to determine if the system is functioning properly.

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Calero

Dam No. 1450-3

Date of Inspection 1/25/2024



Photo 1: View of the upstream face of the Main Dam from near the right abutment looking towards the left. The small tree shown by the red arrow needs to be removed.



Photo 2: View of the downstream face of the Main Dam from near the right abutment looking towards the left.

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Calero

Dam No. 1450-3

Date of Inspection 1/25/2024



Photo 3: View of the upstream face of the East Dam from near the right abutment looking towards the left.



Photo 4: View of the downstream face of the East Dam from near the right abutment looking towards the left.

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Calero

Dam No. 1450-3

Date of Inspection 1/25/2024



Photo 5: View of the downstream face of the Main Dam near the middle of the dam. The fallen oak tree in this location needs to be removed.



Photo 6: View of the spillway approach and control section looking downstream.

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Michigan Bar No. 1 Dam No. 1450-5 County Sacramento
Type of Dam Earth Type of Spillway Concrete box culvert
Water is ~17.6 feet below spillway crest and ~20 feet below dam crest.

Weather Conditions Clear and cool

Contacts Made Ryan Wenker with Rancho Murieta Community Services District (RMCS D)

Reason for Inspection Maintenance inspection

Important Observations, Recommendations or Actions Taken

The owner had removed some of the woody vegetation identified during the last inspection and the spillway approach was clear, but sporadic oak trees and berry vine growth remain on the dam that need to be removed as part of the regular maintenance activities.

Conclusions

From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.

Observations and Comments

<u>Dam</u>	The dam has two reservoirs, Reservoir No. 1 and Reservoir No. 2. I walked the crests of the two reservoirs. The crests were in satisfactory condition. The visible portion of the upstream faces and the downstream faces were in satisfactory condition with no signs of instability or distress (Photo 1 and 2). Intermittent oak tree and berry vine growth were present on the dam. RMCS D had removed some of the woody vegetation growth identified during the last inspection and I instructed them to continue removing the objectional vegetation as part of their regular maintenance activities. No major rodent activity was observed, but RMCS D needs to continue with their abatement efforts and collapse and backfill burrows with compacted material when encountered.
<u>Spillway</u>	Reservoir No. 1 has a box culvert emergency spillway. The spillway approach section and downstream channel were clear and unobstructed. Seasonal grass was present in front of the box culvert intake but did not constitute an impediment to flows. The cracking on the 2020 repair to the right side of the box culvert intake appeared unchanged from the past inspection. The cracked joint does not pose a dam safety concern at this time. The Certificate of Approval allows water to be impounded to Elevation 163.00 in Reservoir No. 1, which is 0.59-feet below the invert of the emergency spillway crest.
<u>Outlet</u>	The dam does not have a traditional low-level outlet. The reservoir can be dewatered via pumps located at the southwest end of Reservoir No. 1 (Photo 3). The pumps were in satisfactory condition and RMCS D regularly uses them for irrigation purposes.
<u>Seepage</u>	The dam embankment was damp due to recent precipitation, but no other signs of seepage (i.e. live flow, overly saturated ground, abnormally green vegetation) were observed on the downstream faces, toes, or toe ditch of the dams.
<u>Instr.</u>	There is no instrumentation at this dam, and none is deemed necessary at this time.

Photos taken? Yes No
cc for Owner/Book

Inspected by T.W. Banks TB 2/23/2024
Date of Inspection 1/25/2024 TJ 2/23/2024
Date of Report 2/7/2024

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Michigan Bar No. 1 Dam No. 1450-5

Date of Inspection 1/25/2024



Photo 1: View of the south side upstream face of the dam at Reservoir No. 1 looking east.



Photo 2: View of the south side crest and downstream face of the dam at Reservoir No. 1 looking west.

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Michigan Bar No. 1 Dam No. 1450-5

Date of Inspection 1/25/2024



Photo 3: View of the reservoir dewatering pumps located at the southwest corner of Reservoir No. 1.

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Granlees Dam No. 451 County Sacramento
Type of Dam Concrete gravity Type of Spillway Overpour
Water is 0.5 feet above spillway crest and 4.5 feet below dam crest.

Weather Conditions Overcast and cool

Contacts Made Ryan Wenker with Rancho Murrieta Community Services District (RMCS D)

Reason for Inspection Maintenance inspection

Important Observations, Recommendations or Actions Taken

DSOD will schedule the next inspection with RMCS D in July/August 2024 to observe the dam when it is not spilling.

As previously requested, the vegetation at the downstream left groin of the South Dam needs to be removed.

Conclusions

From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.

Observations and Comments

<u>Dam</u>	<p>The North and South concrete gravity dam overpour structures were spilling during this inspection. The North Dam was observed from the right abutment and the South Dam was observed from the left abutment. The visible sections of the crests, upstream faces, and downstream faces showed no signs of instability or distress (Photos 1 and 2). Spalling mentioned in previous inspection reports at the overpour section of the North Dam was not observed during the inspection due to the spill. The longstanding transverse crack near the left abutment of the South Dam was obscured by the spill and was not observed during the inspection.</p> <p>The vegetation at the downstream left groin of the South Dam was still present and needs to be removed. No other objectional vegetation was noted during the inspection.</p>
<u>Spillway</u>	The spillway approaches, crests, and downstream channels were clear and unobstructed.
<u>Outlet</u>	<p>Neither dam has a functioning low-level outlet. The low-level outlet system consists of a sluice gate at the pumping plant intake at the North Dam and the fish ladder at the South Dam.</p> <p>The California Water Code section 6102.5(c) requires that the controls be fully cycled by the owner annually, and in the presence of DSOD every three years. The sluice gate was fully exercised during this inspection without issue. It is due to be cycled in the presence of DSOD again during the 2026-2027 inspection cycle.</p>
<u>Seepage</u>	The seepage conditions at the dam could not be assessed due to the ongoing spill.
<u>Instr.</u>	There is no instrumentation for this dam, and none is deemed necessary.

Photos taken? Yes No
cc for Owner/Book

Inspected by T.W. Banks TB 2/23/2024
Date of Inspection 2/13/2024 TJ 2/23/2024
Date of Report 2/15/2024

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Granlees

Dam No. 451

Date of Inspection 2/13/2024



Photo 1: View of the North Dam from the right abutment looking towards the left.



Photo 2: View of the South Dam from the left abutment looking towards the right.

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Clementia Dam No. 1450-4 County Sacramento
Type of Dam Earth Type of Spillway Concrete box culvert
Water is 0.1 feet above spillway crest and 7.9 feet below dam crest.

Weather Conditions Overcast and cool

Contacts Made Ryan Wenker and Travis Bohannon with Rancho Murrieta Community Services District (RMCS D)
Reason for Inspection Maintenance inspection

Important Observations, Recommendations or Actions Taken

As requested, RMCS D had cleared the berry vines at the downstream spillway and outlet channel.

The dam is well maintained, but RMCS D needs to continue removing sporadic woody vegetation from the dam faces and crest as needed.

Instrumentation

As requested, the latest instrumentation report included:

- long-term data plots for all historical survey movement,
- short-term and long-term data plots for seepage, piezometer, and reservoir data,
- plan view maps of the dam showing the instrumentation locations,
- and figures of dam cross sections showing each piezometer sensing interval, and the piezometer top of casing and tip elevations.

Conclusions

From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.

Observations and Comments

<u>Dam</u>	I walked the crest, downstream groins, and toe of the dam. The crest, upstream face, and downstream face were in satisfactory condition with no signs of instability or distress (Photos 1 and 2). Vegetation control on the dam was satisfactory apart from sporadic woody vegetation growth that RMCS D needs to remove as part of their regular maintenance activities. No major rodent activity was observed, but RMCS D needs to continue with their abatement efforts and collapse and backfill burrows with compacted material when encountered.
<u>Spillway</u>	The spillway, control section, box culvert, and downstream channel were clear and unobstructed. The concrete structure remains in satisfactory condition. Stoplogs were not in place, in accordance with the Certificate of Approval which requires the boards be removed between October 1 and April 15 each year, both dates inclusive. As requested, RMCS D had cleared the berry vines at the downstream spillway and outlet channel (Photo 3).
<u>Outlet</u>	The low-level outlet is controlled by an upstream slide gate and downstream gate valve. The California Water Code section 6102.5(c) requires that the upstream and downstream controls be fully cycled by the owner annually, and in the presence of DSOD every three years. Both controls were fully exercised during this inspection without issue. They are due to be cycled in the presence of DSOD again during the 2026-2027 inspection cycle.

Photos taken? Yes No
cc for Owner/Book

Inspected by T.W. Banks TB 2/23/2024
Date of Inspection 2/13/2024 TJ 2/23/2024
Date of Report 2/15/2024

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUSName of Dam ClementiaDam No. 1450-4Date of Inspection 2/13/2024**Observations and Comments**Seepage

The dam embankment was damp due to morning dew, but no other signs of seepage (i.e. live flow, overly saturated ground, abnormally green vegetation) were observed on the downstream faces, groins, or toe of the dam.

Seepage is collected in a sump at the toe of the dam and the sump pump is metered. Sump readings are recorded monthly and submitted with the annual instrumentation submittals. The outfall for the sump pump and the surrounding area were observed to be clear (Photo 4).

Instr.

Instrumentation at the dam consists of two piezometers, a seepage sump pump, and five survey monuments. The latest instrumentation submittal was received under cover letter dated March 23, 2023, and covers data through the 2022 calendar year.

Piezometers: There are two open standpipe piezometers (P-1 and P-2) aligned near the maximum section of the dam. P-1 is located in the crest, upstream of the chimney drain. P-2 is located in the downstream shell, downstream of the chimney drain and above the blanket drain.

Since installation in 2008, P-1 has shown minor fluctuations corresponding to changes in reservoir level, but generally fluctuates between 8 to 10 feet above its tip elevation. This is reasonable given its location upstream of the chimney drain.

Since installation in 2008, P-2 has generally read dry. This is reasonable given its location downstream of the chimney drain and above the blanket drain and suggests the two drains are functioning as intended.

Seepage: There is one sump pump located at the toe of the dam. Sump readings are recorded monthly. Data is provided from 2004 through 2022. Seepage measured at the sump generally follows changes in the reservoir level, with a historical max prior to 2017 around 50,000 gallons per month (~1.2 GPM). A new meter and pumping system were installed in late 2016/early 2017. Since this installation, the seasonal maximum has been as high as 500,000 gallons per month (~11.5 GPM). This behavior continued in 2022 and the sump remained within its historical range, with an annual max around 150,000 gallons per month (~3.5 GPM).

Survey: There are five survey monuments at the dam. The monuments are surveyed every five years for vertical and horizontal displacements. The latest survey was conducted in April 2020. The data from the latest survey was reviewed in the inspection report dated April 15, 2022, with no unusual trends noted. The next survey is due to be performed in 2025.

Conclusion: The instrumentation data indicate the dam is performing satisfactorily, and no additional instrumentation is deemed necessary at this time.

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Clementia

Dam No. 1450-4

Date of Inspection 2/13/2024



Photo 1: View of the upstream face from near the right abutment looking towards the left.



Photo 2: View of the downstream face from near the left abutment looking towards the right.

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Clementia

Dam No. 1450-4

Date of Inspection 2/13/2024



Photo 3: View of the spillway and low-level outlet outfall structure looking upstream.



Photo 4: View of the seepage sump pump outfall in the ditch downstream of the toe of the dam.

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Michigan Bar No. 2 Dam No. 1450-6 County Sacramento
Type of Dam Earth Type of Spillway Concrete pipe
Water is at the feet - spillway crest and 2.5 feet below dam crest.

Weather Conditions Overcast and cool

Contacts Made Ryan Wenker and Travis Bohannon with Rancho Murrieta Community Services District (RMCS D)
Reason for Inspection Maintenance inspection

Important Observations, Recommendations or Actions Taken

The dam is well maintained.

The outlet slide gates for Pond No. 3 and Pond No. 5 are due to be cycled in the presence of DSOD during the next inspection.

Conclusions

From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.

Observations and Comments

<u>Dam</u>	The dam has five ponds, but only the sections of embankment impounding Pond No. 3 and No. 5 are jurisdictional. I walked the crest and the western downstream toe (Photo 1). The visible upstream faces, crests, and downstream faces and groins were in satisfactory condition, showing no signs of instability or distress. Vegetation control was satisfactory. No major rodent activity was observed, but RMCS D needs to continue with their abatement efforts and collapse and backfill burrows with compacted material when encountered.
<u>Spillway</u>	The ponds are equipped with overflow structures that connect each pond. Pond No. 5 has a spillway pipe which discharges into Reservoirs No. 1 and No. 2 at Michigan Bar No. 1 Dam. The spillway pipe and each overflow structure were clear and unobstructed.
<u>Outlet</u>	The low-level outlet system is comprised of drain lines for both Ponds No. 3 and No. 5. The drains discharge into a diversion manhole located at the north end of the reservoir between Ponds No. 3 and No. 5. Each drain line is controlled by a slide gate located in the manhole. Releases then discharge through a single drain line into Michigan Bar No. 1 Dam (Photo 2). The slide gate which controls the drain line into Michigan Bar No. 1 Dam is left in the fully open position and the operating stem has been removed. The California Water Code section 6102.5(c) requires that the outlet controls be fully cycled by the owner annually, and in the presence of DSOD every three years. The controls for Ponds No. 3 and No. 5 were fully cycled in the presence of DSOD on February 10, 2022. They are due to be cycled in the presence of DSOD again during the next inspection.
<u>Seepage</u>	The dam embankment was damp due to morning dew, but no other signs of seepage (i.e. live flow, overly saturated ground, abnormally green vegetation) were observed on the downstream faces, groins, or toe of the dam.
<u>Instr.</u>	There is no instrumentation for this dam, and none is deemed necessary at this time.

Photos taken? Yes No
cc for Owner/Book

Inspected by T.W. Banks TB 2/23/2024
Date of Inspection 2/13/2024 TJ 2/23/2024
Date of Report 2/15/2024

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Michigan Bar No. 2

Dam No. 1450-6

Date of Inspection 2/13/2024



Photo 1: View of the downstream face and toe on the west side of the ponds.

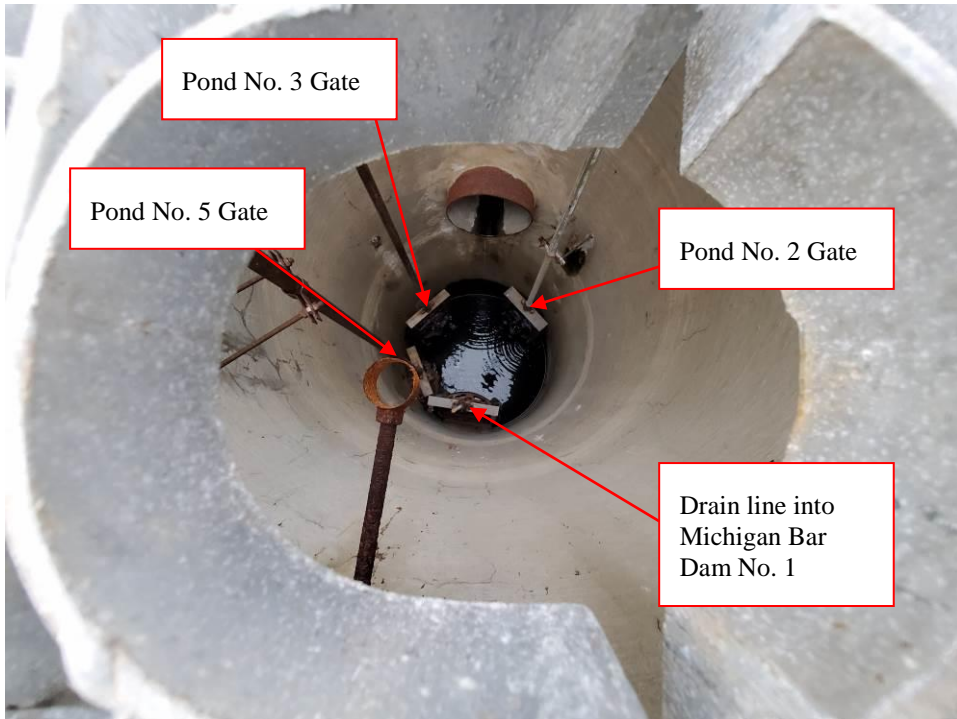


Photo 2: View into the diversion manhole.

RANCHO MURIETA COMMUNITY SERVICES DISTRICT

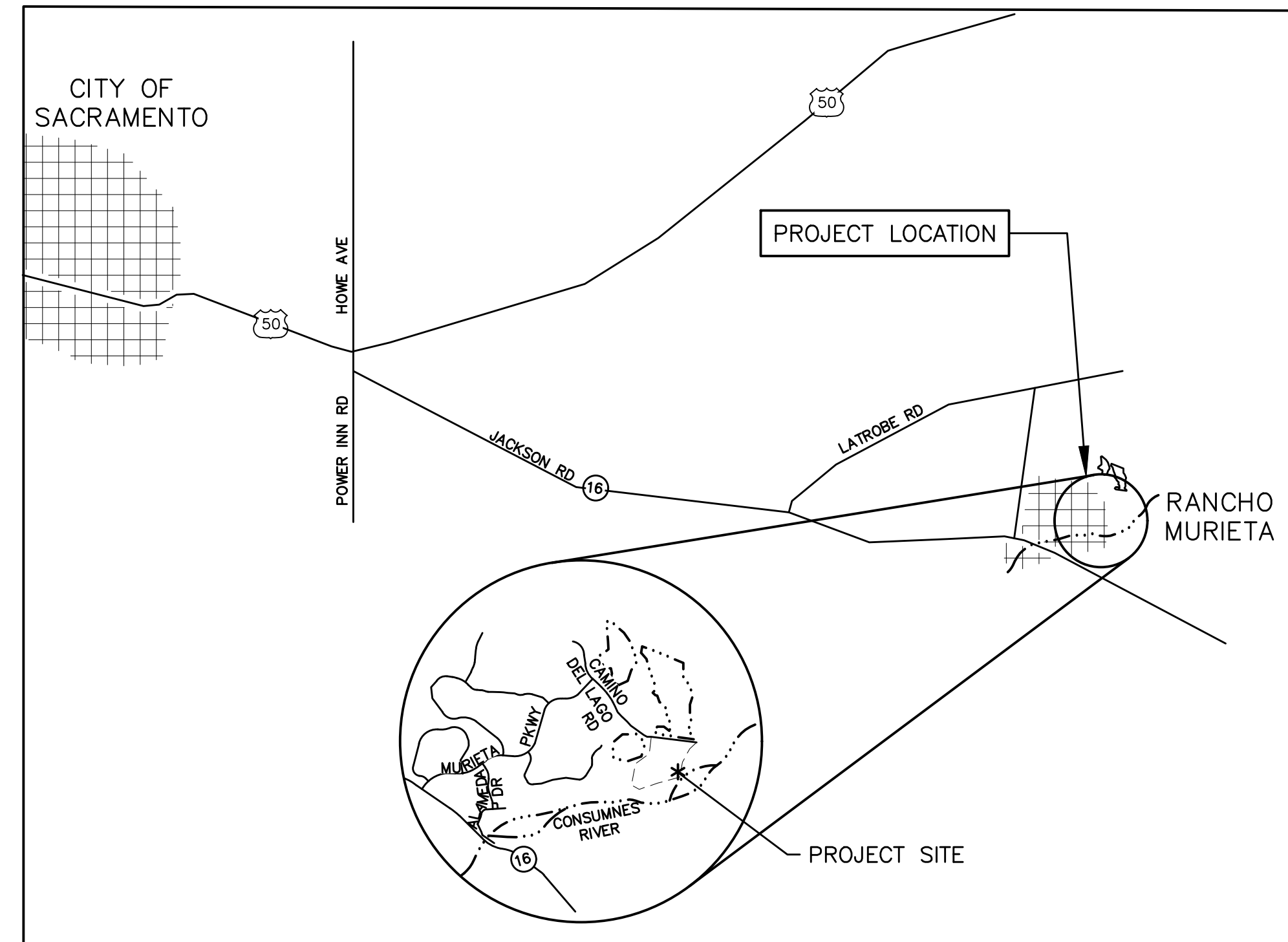
RANCHO MURIETA, CALIFORNIA

GRANLEES RAW WATER INTAKE IMPROVEMENTS

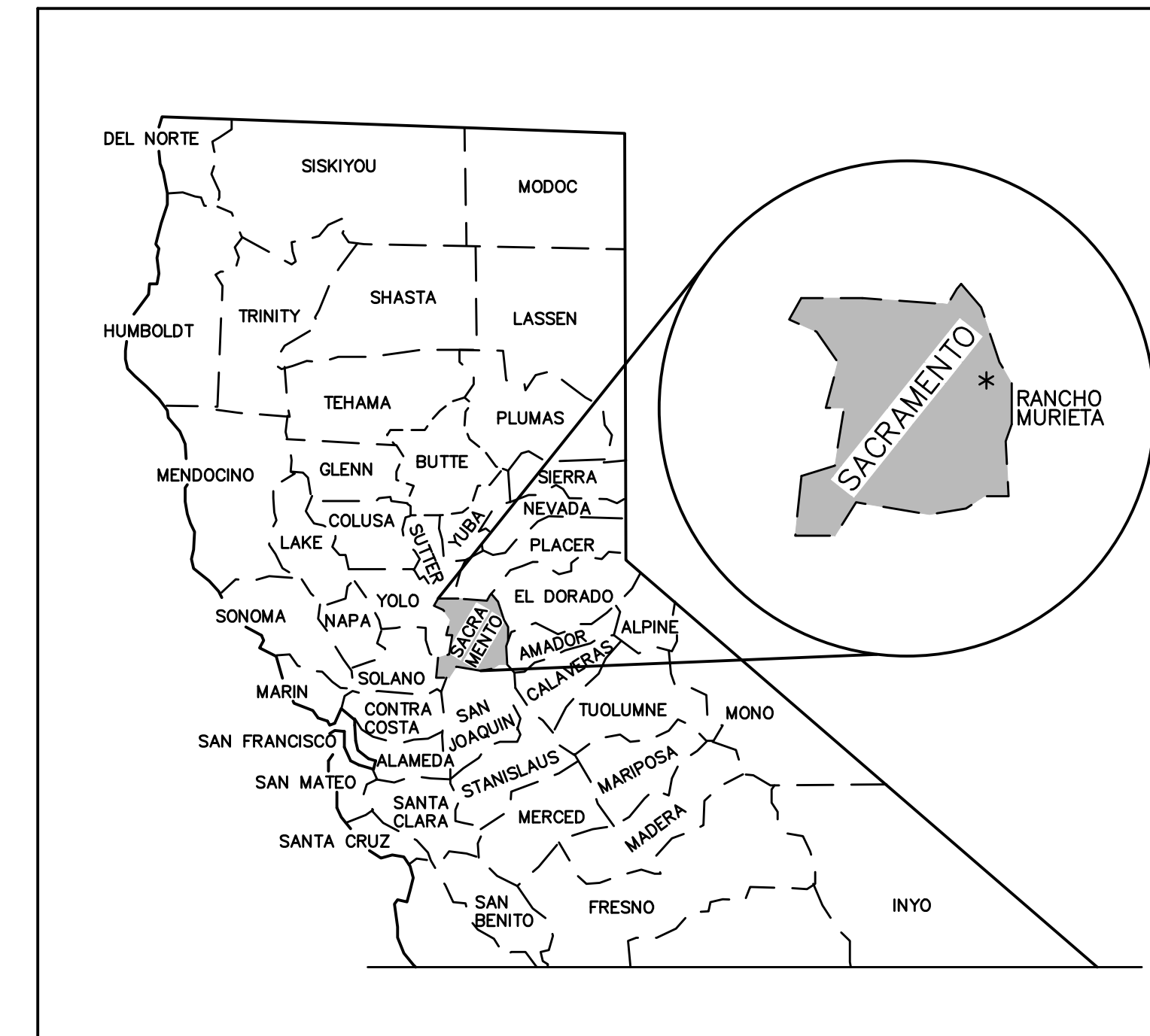
BID SET
FEBRUARY 2024

INDEX OF DRAWINGS

DWG	SHEET	TITLE
G1	1	COVER SHEET
G2	2	GENERAL NOTES, ABBREVIATIONS & SYMBOLS
C1	3	UPPER DEMOLITION PLAN
C2	4	LOWER DEMOLITION PLAN
C3	5	UPPER RENOVATION PLAN
C4	6	LOWER RENOVATION PLAN
C5	7	SECTIONS & DETAILS 1
C6	8	SECTIONS & DETAILS 2
C7	9	SECTIONS & DETAILS 3
C8	10	SECTIONS & DETAILS 4
C9	11	SECTIONS & DETAILS 5
C10	12	TYPICAL DETAILS



LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

APPROVED ON _____ RESOLUTION NO. _____
[Signature] 02/28/2024
 RANCHO MURIETA COMMUNITY SERVICES DISTRICT DATE
 _____ 02/28/2024
[Signature] DATE
 DOMENICHELLI & ASSOCIATES

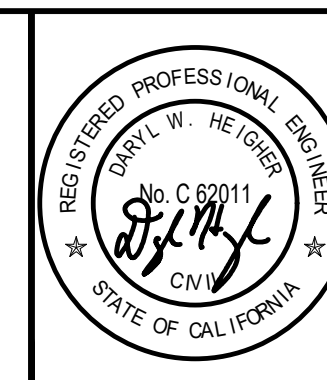
Z:\RM-ONCALL 3-21 TO 3-24\RM-033 GRANLEES DIVERSION DESIGN\DRAWINGS\RM033-G'S.DWG

REVISIONS				
REV	DESCRIPTION	DATE	BY	CHKD
1	BID SET	02/24	DWH	DWH

WARNING
 0 1"
 AT FULL SCALE
 (IF BAR IS NOT 1" - SCALE ACCORDINGLY)

DESIGNED: D. HEIGHER
 DRAWN: J. CADE
 CHECKED: J. DOMENICHELLI
 DATE: FEBRUARY 2024

DOMENICHELLI & ASSOCIATES
 Domenicelli & Associates
 5180 Golden Foothill Pkwy, Suite 220 Ph: (916) 933-1997
 El Dorado Hills, CA 95762 Fax: (916) 933-4778



Rancho Murieta
 Community Services District
 15160 Jackson Road, Rancho Murieta
 (916) 354 3700

RANCHO MURIETA COMMUNITY SERVICES
 GRANLEES RAW WATER INTAKE IMPROVEMENTS
 COVER SHEET

DRAWING NUMBER
G1
 SHEET NUMBER
1 OF 12

GENERAL NOTES

- WORK INCLUDED (BUT NOT LIMITED TO):
 - ALL WORK SHALL CONFORM TO THE APPLICABLE LOCAL, STATE AND FEDERAL CODES AND SPECIFICATIONS INCLUDING OSHA.
 - IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE JOB SAFETY. LOCAL, STATE AND FEDERAL, INCLUDING OSHA, LAWS AND RULES SHALL BE ENFORCED BY THE CONTRACTOR AT ALL TIMES.
 - THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA), (800) 642-2444, 48 HOURS PRIOR TO ANY EXCAVATION. THE CONTRACTOR SHALL ALSO NOTIFY ALL OTHER UTILITIES, NOT IN USA, 48 HOURS PRIOR TO ANY EXCAVATION.
 - ALL STRUCTURES AND FACILITIES DAMAGED BY CONTRACTOR SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
- PUBLIC SAFETY AND TRAFFIC CONTROL PLAN SHALL BE PROVIDED IN ACCORDANCE WITH THE GENERAL SPECIFICATIONS. SAFE VEHICULAR AND OPERATION STAFF ACCESS SHALL BE PROVIDED AT ALL TIMES DURING CONSTRUCTION.
- EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND SACRAMENTO COUNTY BMPS.
- THE TYPES, LOCATIONS, SIZES, AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE IMPROVEMENT PLANS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS, AND DEPTHS OF SUCH UNDERGROUND UTILITIES. A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES. HOWEVER, THE DISTRICT CAN ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE DELINEATION OF SUCH UNDERGROUND UTILITIES NOR FOR THE EXISTENCE OF OTHER BURIED OBJECTS OR UTILITIES WHICH MAY BE ENCOUNTERED BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ACTUAL LOCATIONS.
- ALL CONSTRUCTION SHALL CONFORM TO THESE PLANS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL NOTIFY THE DISTRICT CONSTRUCTION INSPECTION SUPERVISOR AT (916) 354-3700 A MINIMUM OF 48 HOURS PRIOR TO INTENDED START OF WORK TO ARRANGE A PRE-CONSTRUCTION FIELD MEETING AND SHALL VERIFY AT THIS TIME THAT THE INSPECTOR HAS RECEIVED COPIES OF THE APPROVED PLANS. NO CONSTRUCTION MAY BE PERFORMED PRIOR TO THIS MEETING.
- COMPLIANCE WITH NOISE RESTRICTIONS IS REQUIRED. HOURS OF CONSTRUCTION OPERATION SHALL BE LIMITED FROM 7:00 A.M. TO 6:00 P.M. WEEKDAYS. NO SATURDAY WORK SHALL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. NO SUNDAY WORK IS APPROVED. CONSTRUCTION EQUIPMENT SHALL BE MUFFLED AND SHROUDED TO MINIMIZE NOISE LEVELS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- NO REFUELING, LUBRICATION, OR MAINTENANCE OF CONSTRUCTION VEHICLES SHALL BE DONE ANYWHERE ON THE SITE EXCEPT WITHIN APPROVED CONSTRUCTION STAGING AREAS.

PROJECT NOTES

- BYPASS PUMPING: THE CONTRACTOR SHALL BE REQUIRED TO SUPPLY WATER TO THE CIA DITCH AT A RATE OF 2250 GPM DURING TIMES THAT THE FOREBAY WILL NEED TO BE BYPASSED FOR CONSTRUCTION. THIS WORK IS LISTED AS ALTERNATE BID ITEM A1 IN THE BID SCHEDULE. PROVIDE A DAILY RATE FOR PUMPING IN THE BID SCHEDULE.
- THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT A BARRIER TO PREVENT WATER FROM ENTERING THE FOREBAY WHEN WORKING INSIDE THE STRUCTURE AND INSTALLING THE CONTROL GATES.

ARCHAEOLOGY NOTE

SHOULD ANY CULTURAL RESOURCES, SUCH AS STRUCTURAL FEATURES, UNUSUAL AMOUNTS OF BONE OR SHELL, ARTIFACTS, HUMAN REMAINS, OR ARCHITECTURAL REMAINS BE ENCOUNTERED DURING ANY DEVELOPMENT ACTIVITIES, WORK SHALL BE SUSPENDED AND THE OWNER SHALL BE NOTIFIED IMMEDIATELY. CONTRACTOR SHALL COMPLY WITH ALL CONTRACT REQUIREMENTS FOR PROTECTION OF CULTURAL AND ARCHITECTURAL RESOURCES.

CONSTRUCTION WATER

ALL CONSTRUCTION WATER TO BE OBTAINED FROM A LOCATION APPROVED BY THE RANCHO MURIETA COMMUNITY SERVICES DISTRICT.

LEGEND & SYMBOLS

	FLANGED JOINT		WATER SERVICE REGULATOR OR WATER METER
	MECHANICAL JOINT		FIRE HYDRANT
	WELDED JOINT		LIGHT POLE
	BELL & SPIGOT JOINT (LEADED)		SIGN
	BALL JOINT		PROPERTY LINE
	GROOVED END JOINT		EXISTING SEWER
	FLANGED COUPLING ADAPTER		NEW SEWER
	FLEXIBLE COUPLING		EXISTING NON-POTABLE WATER LINE
	FLEXIBLE COUPLING WITH THRUST TIES		NEW NON-POTABLE WATER LINE
	STEEL BELLOWS EXP JOINT		WATER LINE
	ELASTOMER BELLOWS EXP JOINT		TEE UP
	ELBOW UP		TEE DOWN
	ELBOW DOWN		LATERAL UP
	TEE UP		LATERAL DOWN
	TEE DOWN		ELBOW 90°
	LATERAL UP		CROSS
	LATERAL DOWN		TEE
	ELBOW 90°		ELBOW 45°
	CROSS		LATERAL
	TEE		CONCENTRIC REDUCER
	ELBOW 45°		ECCENTRIC REDUCER
	LATERAL		UNION
	CONCENTRIC REDUCER		CAP (WELDED)
	ECCENTRIC REDUCER		TRAP
	UNION		VENT
	CAP (WELDED)		WYE
	TRAP		BURIED VALVE W/ BOX
	VENT		BALL VALVE
	WYE		BUTTERFLY VALVE
	BURIED VALVE W/ BOX		CHECK VALVE
	BALL VALVE		DIAPHRAGM VALVE
	BUTTERFLY VALVE		GATE VALVE
	CHECK VALVE		PUMP CONTROL VALVE
	DIAPHRAGM VALVE		PRESSURE RELIEF VALVE
	GATE VALVE		PLUG VALVE
	PUMP CONTROL VALVE		3 WAY VALVE
	PRESSURE RELIEF VALVE		4 WAY VALVE
	PLUG VALVE		VACUUM RELIEF VALVE
	3 WAY VALVE		BACKFLOW PREVENTER
	4 WAY VALVE		BLIND FLANGE
	VACUUM RELIEF VALVE		DOUBLE MECHANICAL JOINT
	BACKFLOW PREVENTER		PVC JOINT
	BLIND FLANGE		EXPANSION COUPLING
	DOUBLE MECHANICAL JOINT		PIPE CONTINUATION
	PVC JOINT		PIPE CONTINUATION, END VIEW
	EXPANSION COUPLING		CLEAN OUT
	PIPE CONTINUATION		DRAIN OR BELL-UP
	PIPE CONTINUATION, END VIEW		FILTER
	CLEAN OUT		FLEXIBLE HOSE OR TUBING
	DRAIN OR BELL-UP		FLOWMETER
	FILTER		FLOWTUBE
	FLEXIBLE HOSE OR TUBING		FREE SURFACE
	FLOWMETER		GAGE, PRESSURE (W/COCK)
	FLOWTUBE		HOSE BIBB 3/4" W/HOSE THREAD
	FREE SURFACE		YARD HYDRANT, FREEZE PROOF
	GAGE, PRESSURE (W/COCK)		HOSE CONNECTION
	HOSE BIBB 3/4" W/HOSE THREAD		HOSE RACK
	YARD HYDRANT, FREEZE PROOF		ORIFICE PLATE
	HOSE CONNECTION		PUMP, CENTRIFUGAL
	HOSE RACK		PUMP, VARIABLE SPEED
	ORIFICE PLATE		PUMP, PROGRESSIVE CAVITY
	PUMP, CENTRIFUGAL		SLEEVE
	PUMP, VARIABLE SPEED		STRAINER
	PUMP, PROGRESSIVE CAVITY		WATER SERVICE
	SLEEVE		
	STRAINER		
	WATER SERVICE		

ABBREVIATIONS

AC	ASPHALT CONCRETE	NTS	NOT TO SCALE
AB	AGGREGATE BASE	OC	ON CENTER
ARV	AIR RELEASE VALVE	OF	OVERFLOW
		OZ	OUNCE
BF	BLIND FLANGE	PE	PLAIN END
BFV	BUTTERFLY VALVE	PL	PLATE (STEEL)
BLDG	BUILDING	PLYWD	PLYWOOD
BM	BENCH MARK	PRESS	PRESSURE
BOF	BOTTOM OF FLANGE	PL	PROPERTY LINE
BW	BACKWASH WATER	PSI	POUND PER SQUARE INCH
		PW	POTABLE WATER
CIP	CAST IN PLACE	R OR RAD	RADIUS
CLG	CEILING	RD	ROAD
CLR	CLEAR	RDW	REDWOOD
CL	CENTERLINE	RED	REDUCER
CMP	CORRUGATED METAL PIPE	RM	ROOM
CO	CLEANOUT	RO	ROUGH OPENING
CONC	CONCRETE	RTN	RETURN
CONT	CONTINUOUS	RV	ROOF VENT
CPLG	COUPLING	R/W	RIGHT-OF-WAY
C TO C	CENTER TO CENTER		
CV	CHECK VALVE		
d	PENNY (NAIL SIZE)	SCHED	SCHEDULE
DET	DETAIL DIA DIAMETER	SEC	SECTION
DIA	DIAMETER	SH	SHEET
DIP	DUCTILE IRON PIPE	SHTG	SHEATHING
DWG	DRAWING	SPEC	SPECIFICATIONS
		SQ	SQUARE
(E)	EXISTING	SST	STAINLESS STEEL
EA	EACH	STA	STATION
ECC	ECCENTRIC	STD	STANDARD
EG	EXISTING GRADE	STL	STEEL
EL	ELEVATION	STRL	STRUCTURAL
ELB	ELBOW	STRUCT	STRUCTURE
ELEC	ELECTRIC, ELECTRICAL		
ESEW	EMERGENCY SHOWER & EYEWASH	TAN	TANGENT
EW	EACH WAY	TBG	TUBING TECH
EXH	EXHAUST	TEMP	TEMPERATURE OR TEMPORARY
EX	EXISTING	THD	THREAD
EXIST	EXISTING	TOC	TOP OF CURB
		TOG	TOP OF GRATE
FC	FLEXIBLE COUPLING	TOP	TOP OF PIPE
FCA	FLANGED COUPLING ADAPTER	TOR	TOP OF ROCK
FCTRY	FACTORY	TOW	TOP OF WALL
FD	FLOOR DRAIN	TYP	TYPICAL
FDN	FOUNDATION	TW	TREATED WATER
FF	FINISH FLOOR		
FG	FINISH GRADE	UNO	UNLESS NOTED OTHERWISE
FIG	FIGURE		
FL	FLOOR	V	VENT, VOLT
FLG	FLANGE FL FLOW LINE	VAC	VACUUM
FM	FORCE MAIN	VTR	VENT THRU ROOF
FT	FOOT OR FEET		
FTG	FOOTING	WM	WATER METER
		WW	WASTE WATER
GA	GAGE		
GAL	GALLON		
GALV	GALVANIZED		
GV	GATE VALVE		
HDW	HARDWARE		
HORIZ	HORIZONTAL		
HP	HORSEPOWER		
HR	HOSE RACK		
IE	INVERT ELEVATION		
IN	INCH		
INSUL	INSULATION		
INV	INVERT		
JT	JOINT		
KIP	THOUSAND POUNDS		
KW	KILOWATT		
L	ANGLE		
LB	POUNDS		
LF	LINEAR FEET		
LT	LEFT		
LR	LONG RADIUS		
MAX	MAXIMUM		
MECH	MECHANICAL		
MFR	MANUFACTURER		
MH	MANHOLE		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
MJ	MECHANICAL JOINT		
MO	MASONRY OPENING		
(N)	NEW		
NO OR #	NUMBER		

Z:\RM-ONCALL 3-21 TO 3-24\RM-033 GRANLEES DIVERSION DESIGN\DRAWINGS\RM033-GS.DWG

REVISIONS				
REV	DESCRIPTION	DATE	BY	CHKD
1	BID SET	02/24	DWH	DWH

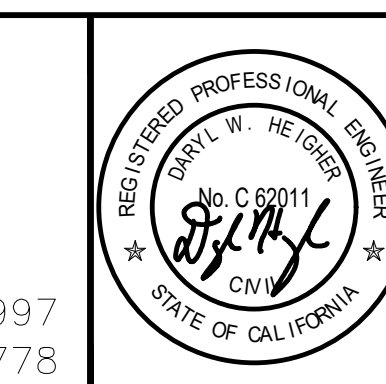
WARNING

0 1"
AT FULL SCALE
(IF BAR IS NOT 1" - SCALE ACCORDINGLY)

DESIGNED: D. HEIGHER
DRAWN: J. CADE
CHECKED: J. DOMENICHELLI
DATE: FEBRUARY 2024

DOMENICHELLI & ASSOCIATES

Domenicelli & Associates
5180 Golden Foothill Pkwy, Suite 220 El Dorado Hills, CA 95762
Ph: (916) 933-1997 Fax: (916) 933-4778



Rancho Murieta
Community Services District

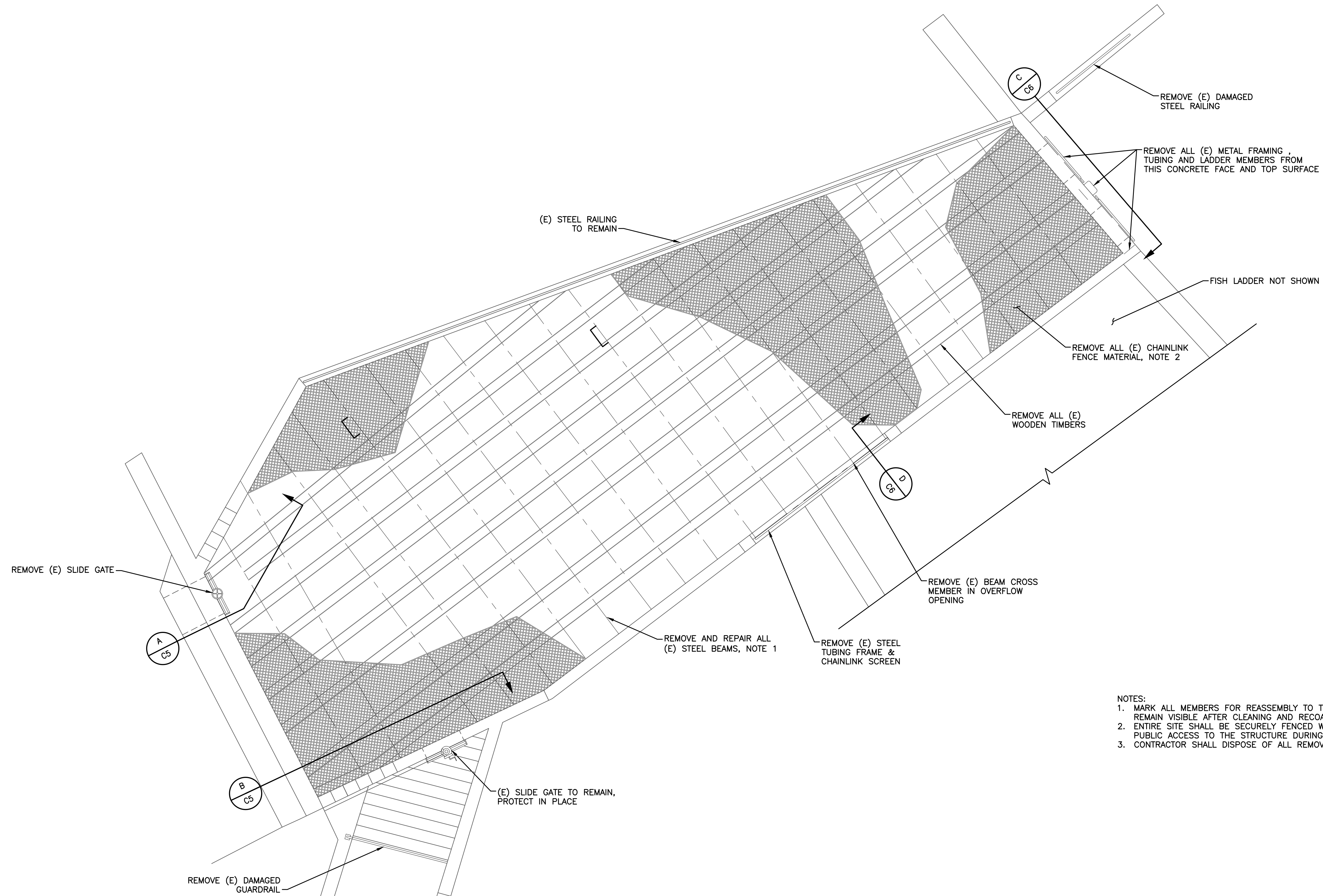
15160 Jackson Road, Rancho Murieta (916) 354 3700

RANCHO MURIETA COMMUNITY SERVICES
GRANLEES RAW WATER INTAKE IMPROVEMENTS

**GENERAL NOTES,
ABBREVIATIONS & SYMBOLS**

DRAWING NUMBER	G2
SHEET NUMBER	2 OF 12

Z:\RM-ONCALL 3-21 TO 3-24\RM-033 GRANLEES DIVERSION DESIGN\DRAWINGS\RM033-FBAY PLAN.DWG



- NOTES:
1. MARK ALL MEMBERS FOR REASSEMBLY TO THE SAME LOCATIONS. MARKS SHALL REMAIN VISIBLE AFTER CLEANING AND RECOATING.
 2. ENTIRE SITE SHALL BE SECURELY FENCED WITH TEMPORARY FENCING TO PREVENT PUBLIC ACCESS TO THE STRUCTURE DURING CONSTRUCTION.
 3. CONTRACTOR SHALL DISPOSE OF ALL REMOVED MATERIALS IN A LEGAL MANNER.

REVISIONS				
REV	DESCRIPTION	DATE	BY	CHKD
1	BID SET	02/24	DWH	DWH

WARNING

0 1"
AT FULL SCALE
(IF BAR IS NOT 1" - SCALE ACCORDINGLY)

DESIGNED: D. HEIGHER
DRAWN: J. CADE
CHECKED: J. DOMENICHELLI
DATE: FEBRUARY 2024

DOMENICHELLI & ASSOCIATES

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5180 Golden Foothill Pkwy, Suite 220 Ph: (916) 933-1997
El Dorado Hills, CA 95762 Fax: (916) 933-4778



Rancho Murieta
Community Services District

15160 Jackson Road, Rancho Murieta
(916) 354 3700

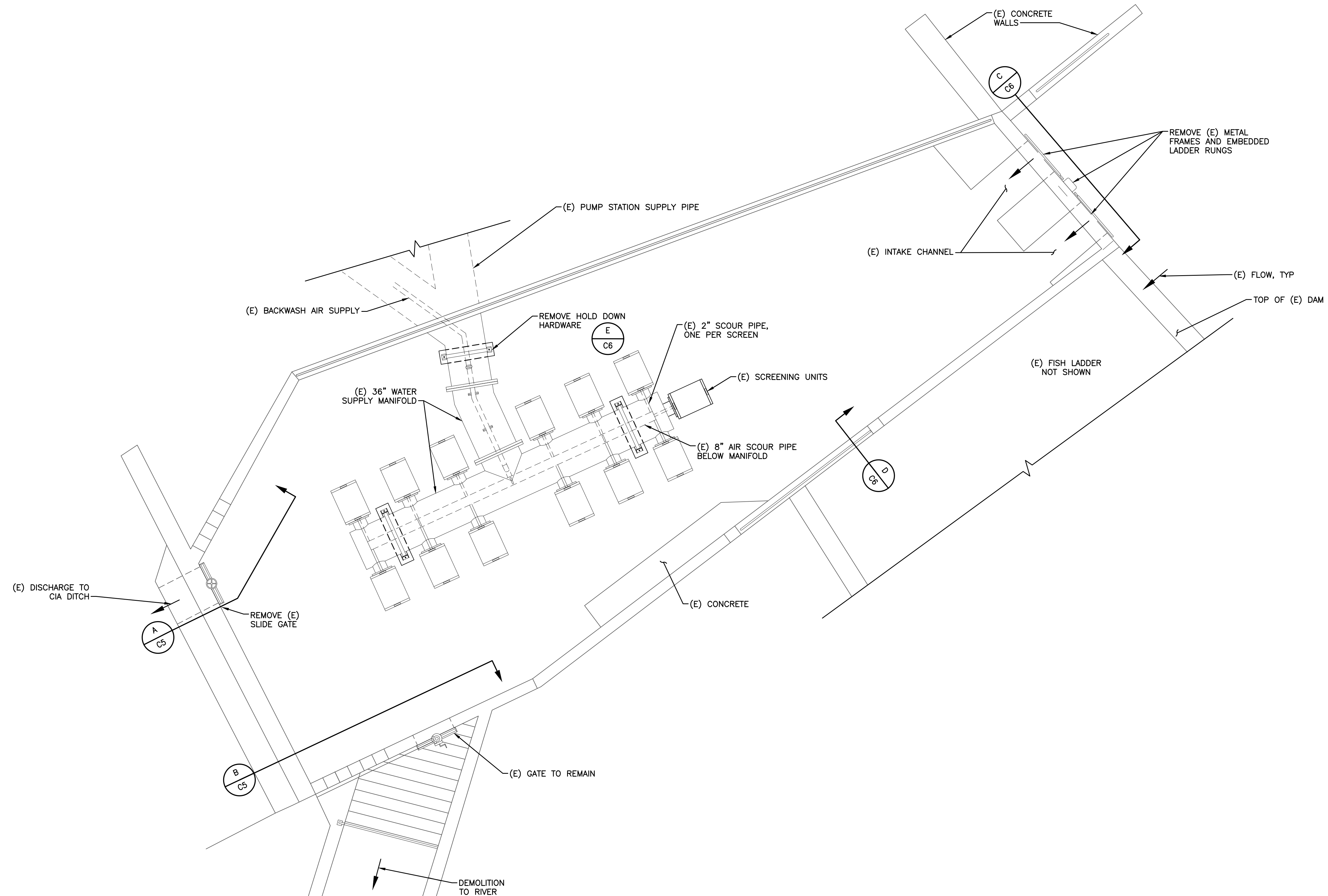
RANCHO MURIETA COMMUNITY SERVICES
GRANLEES RAW WATER INTAKE IMPROVEMENTS

UPPER DEMOLITION PLAN

DRAWING NUMBER
C1

SHEET NUMBER
3 OF 12

Z:\RM-ONCALL 3-21 TO 3-24\RM-033 GRANLEES DIVERSION DESIGN\DRAWINGS\RM033-FBAY PLAN.DWG



REVISIONS				
REV	DESCRIPTION	DATE	BY	CHKD
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 DATE: FEBRUARY 2024

DOMENICHELLI & ASSOCIATES
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 El Dorado Hills, CA 95762 Fax: (916) 933-4778

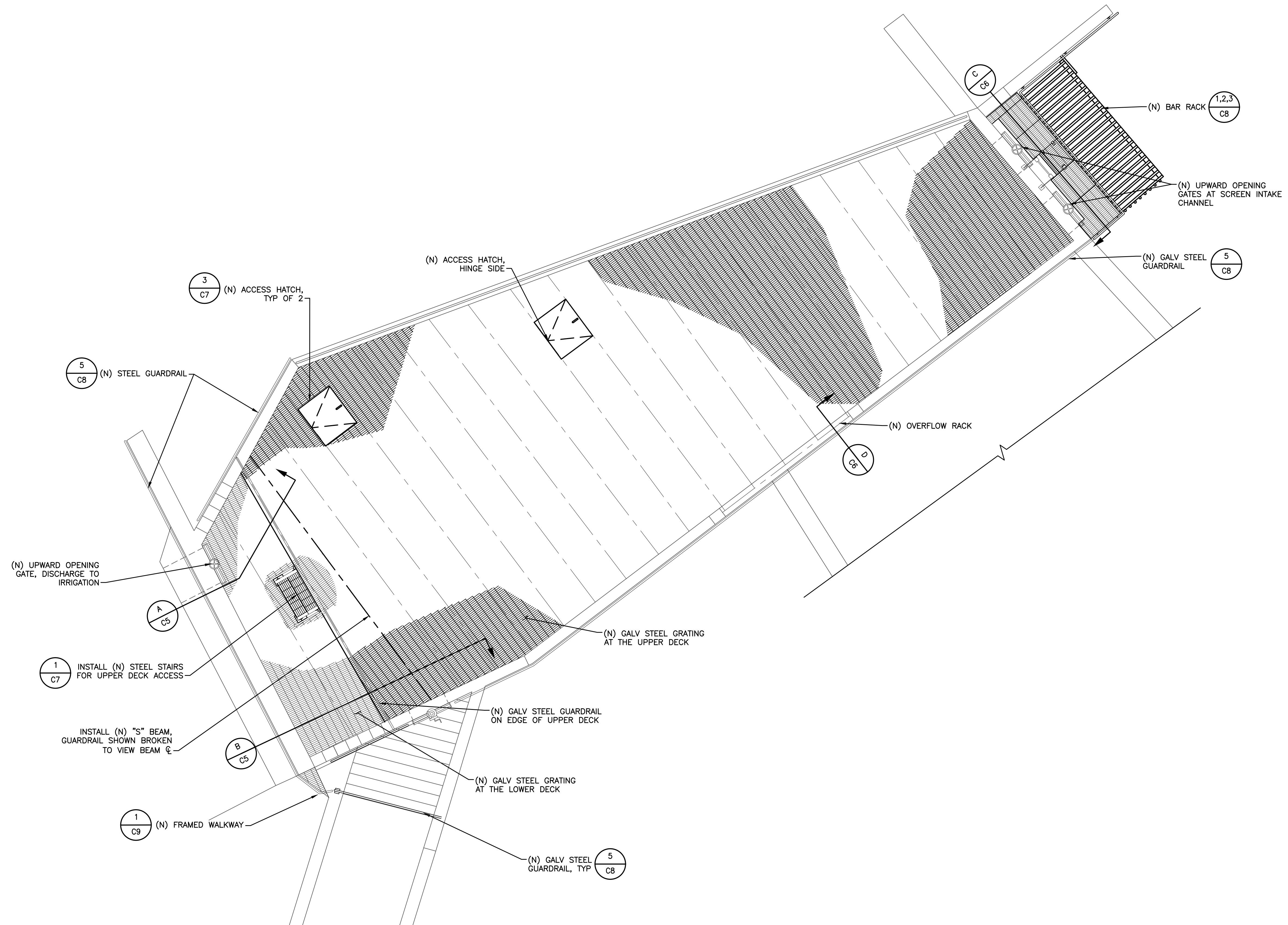


Rancho Murieta
 Community Services District
 15160 Jackson Road, Rancho Murieta
 (916) 354 3700

RANCHO MURIETA COMMUNITY SERVICES
 GRANLEES RAW WATER INTAKE IMPROVEMENTS
LOWER DEMOLITION PLAN

DRAWING NUMBER
C2
 SHEET NUMBER
 4 OF 12

Z:\RM-ONCALL 3-21 to 3-24\RM-033 GRANLEES DIVERSION DESIGN\DRAWINGS\RM033-FBAY PLAN.DWG



REVISIONS				
REV	DESCRIPTION	DATE	BY	CHKD
1	BID SET	02/24	DWH	DWH

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DESIGNED: D. HEIGHER
 DRAWN: J. CADE
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 DATE: FEBRUARY 2024

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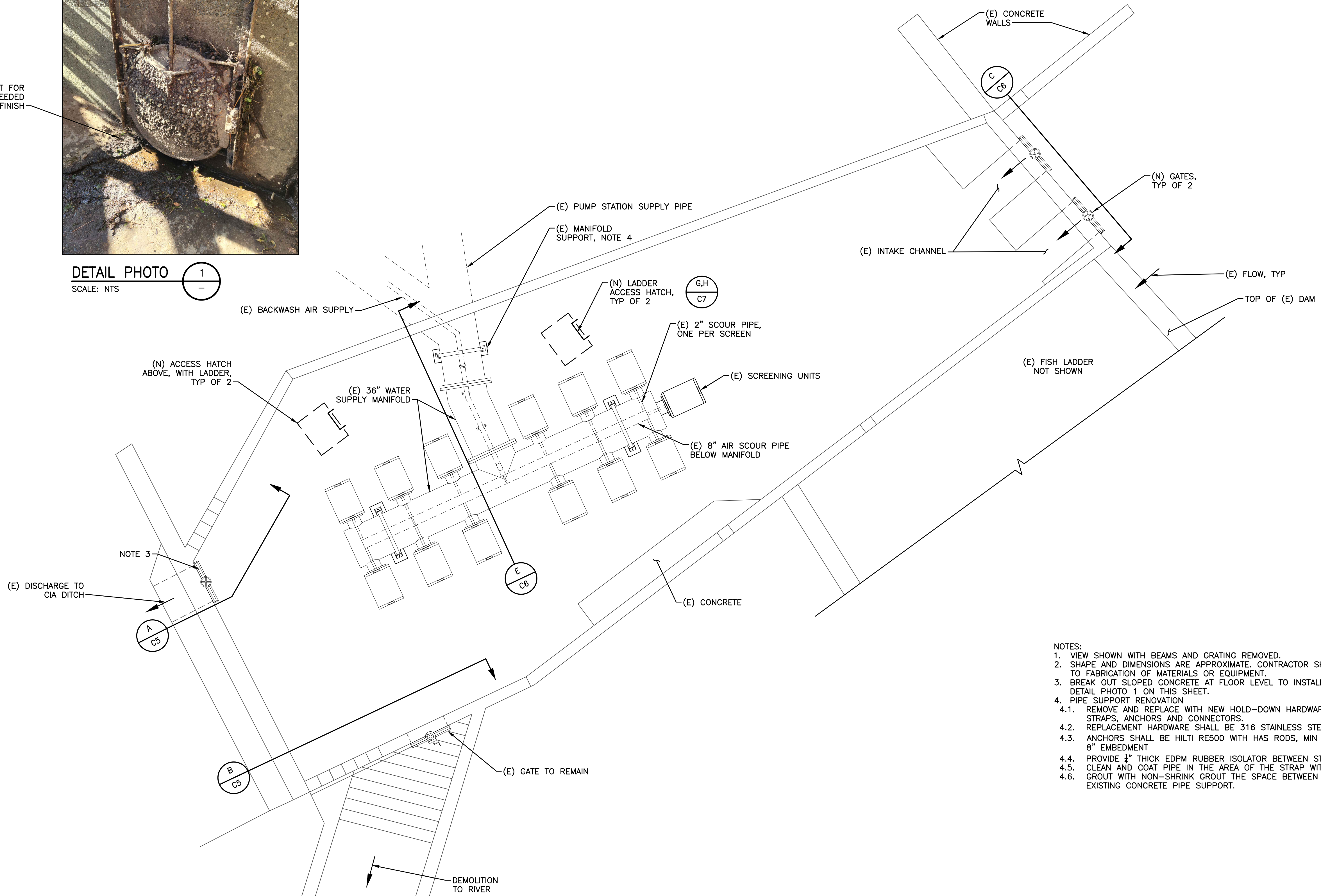
RANCHO MURIETA COMMUNITY SERVICES
 GRANLEES RAW WATER INTAKE IMPROVEMENTS
UPPER RENOVATION PLAN

DRAWING NUMBER
C3
 SHEET NUMBER
 5 OF 12

AREA TO BE CHIPPED OUT FOR NEW GATE, PATCH AS NEEDED TO LEAVE A SMOOTH FINISH



DETAIL PHOTO 1
SCALE: NTS



- NOTES:**
- VIEW SHOWN WITH BEAMS AND GRATING REMOVED.
 - SHAPE AND DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL VERIFY PRIOR TO FABRICATION OF MATERIALS OR EQUIPMENT.
 - BREAK OUT SLOPED CONCRETE AT FLOOR LEVEL TO INSTALL NEW GATE. SEE DETAIL PHOTO 1 ON THIS SHEET.
 - PIPE SUPPORT RENOVATION
 - REMOVE AND REPLACE WITH NEW HOLD-DOWN HARDWARE INCLUDING STRAPS, ANCHORS AND CONNECTORS.
 - REPLACEMENT HARDWARE SHALL BE 316 STAINLESS STEEL
 - ANCHORS SHALL BE HILTI RE500 WITH HAS RODS, MIN 3/4" DIAMETER AND 8" EMBEDMENT
 - PROVIDE 1/2" THICK EDPM RUBBER ISOLATOR BETWEEN STRAP AND PIPE.
 - CLEAN AND COAT PIPE IN THE AREA OF THE STRAP WITH EPOXY PAINT.
 - GROUT WITH NON-SHRINK GROUT THE SPACE BETWEEN THE PIPE AND THE EXISTING CONCRETE PIPE SUPPORT.

Z:\RM-ONCALL 3-21 TO 3-24\RM-033 GRANLEES DIVERSION DESIGN\DRAWINGS\RM033-FBAY PLAN.DWG

REVISIONS				
REV	DESCRIPTION	DATE	BY	CHKD
1	BID SET	02/24	DWH	DWH

WARNING

0 1"
AT FULL SCALE
(IF BAR IS NOT 1" - SCALE ACCORDINGLY)

DESIGNED: D. HEIGHER
DRAWN: J. CADE
CHECKED: J. DOMENICHELLI
DATE: FEBRUARY 2024

DOMENICHELLI & ASSOCIATES

Domenichelli & Associates
5180 Golden Foothill Pkwy, Suite 220 Ph: (916) 933-1997
El Dorado Hills, CA 95762 Fax: (916) 933-4778



Rancho Murieta
Community Services District

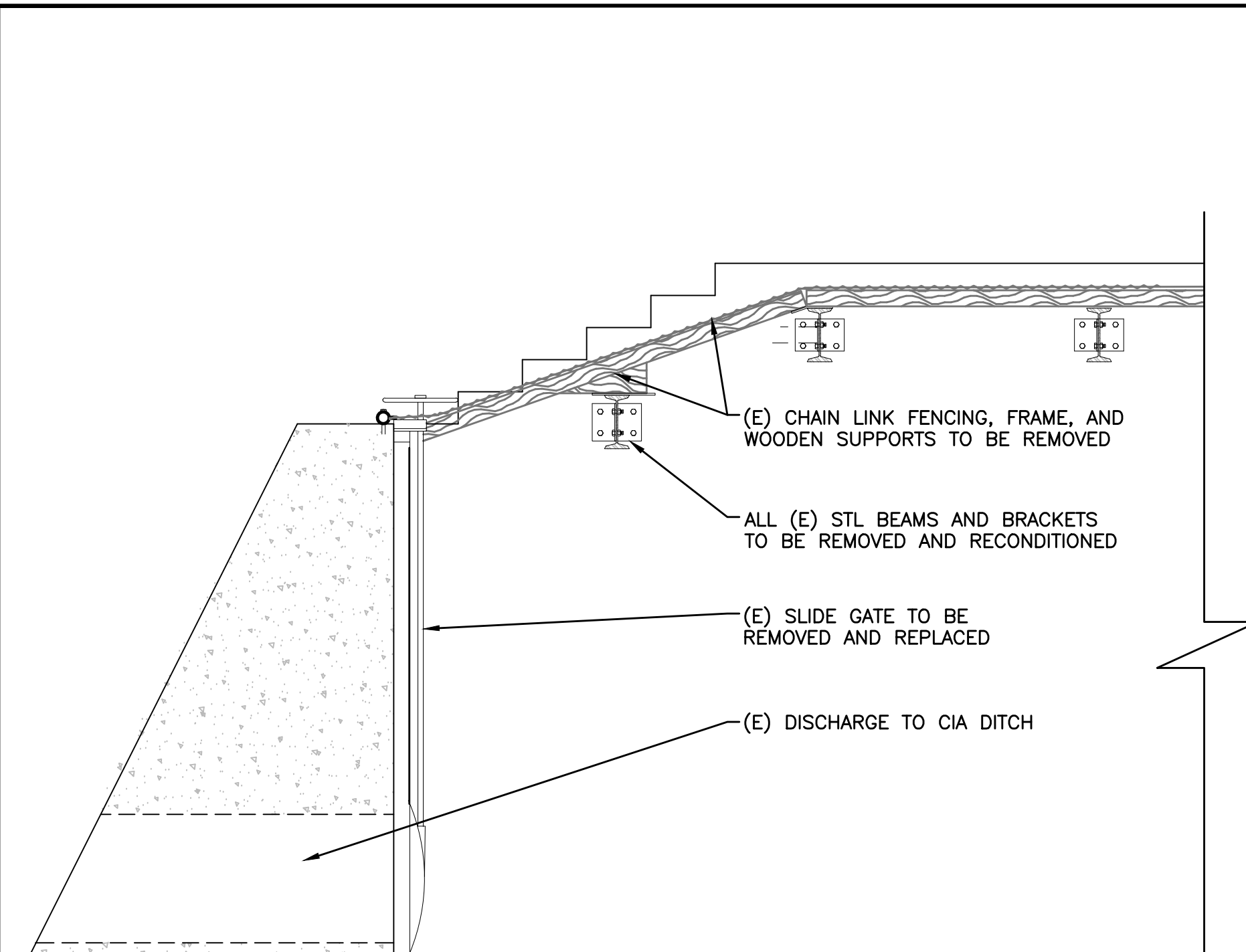
15160 Jackson Road, Rancho Murieta
(916) 354 3700

RANCHO MURIETA COMMUNITY SERVICES
GRANLEES RAW WATER INTAKE IMPROVEMENTS

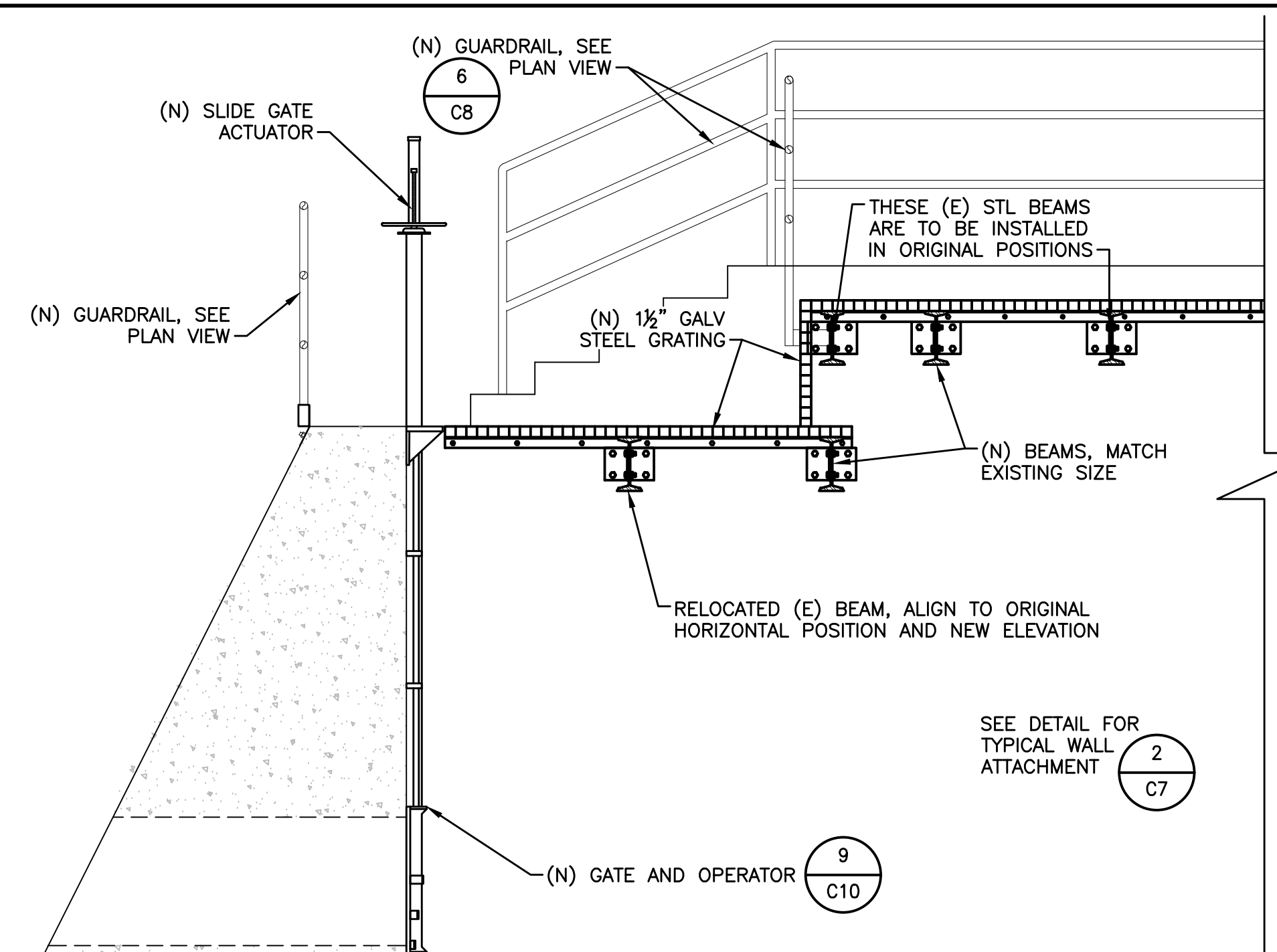
LOWER RENOVATION PLAN

DRAWING NUMBER
C4

SHEET NUMBER
6 OF 12



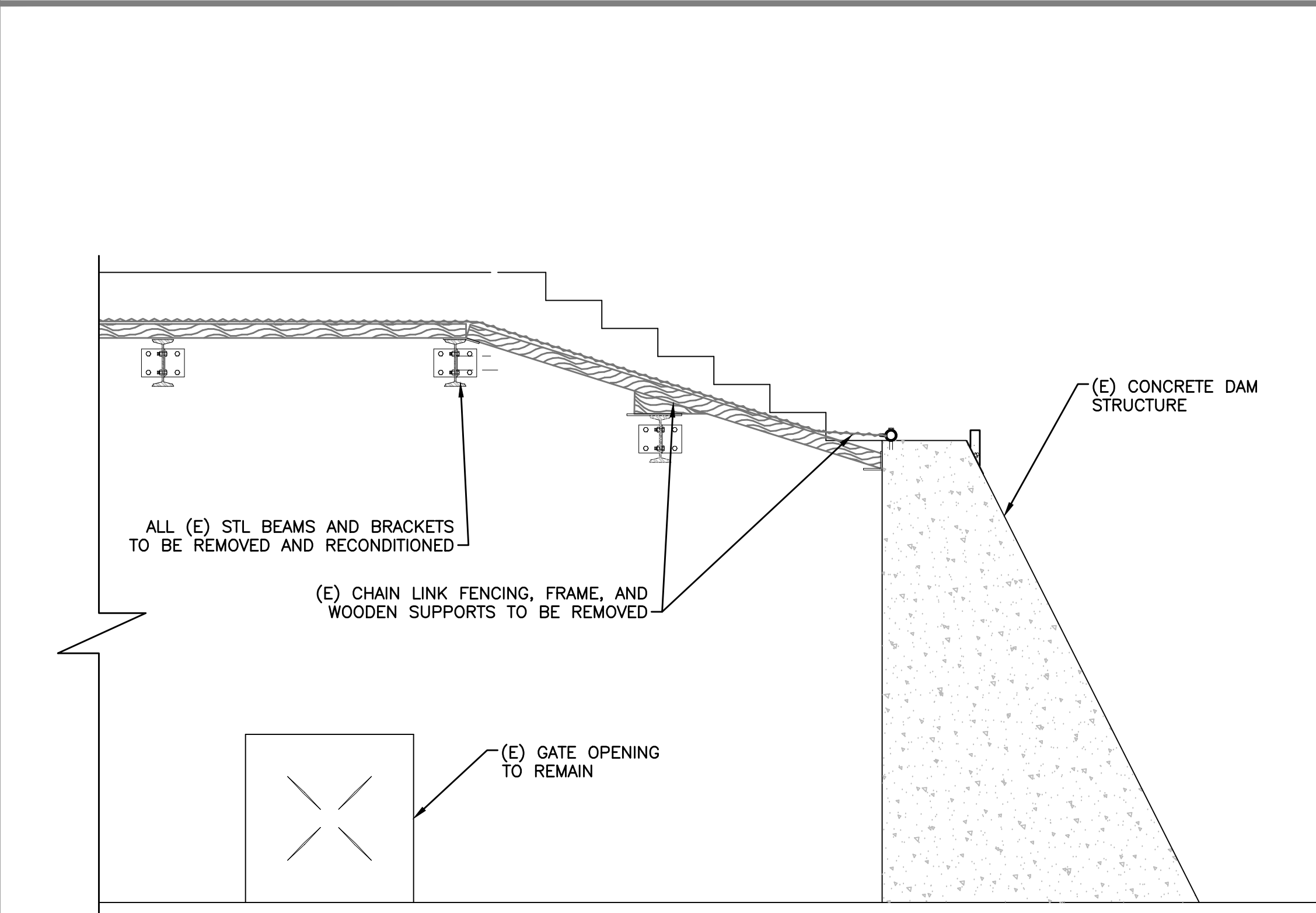
DEMOLITION



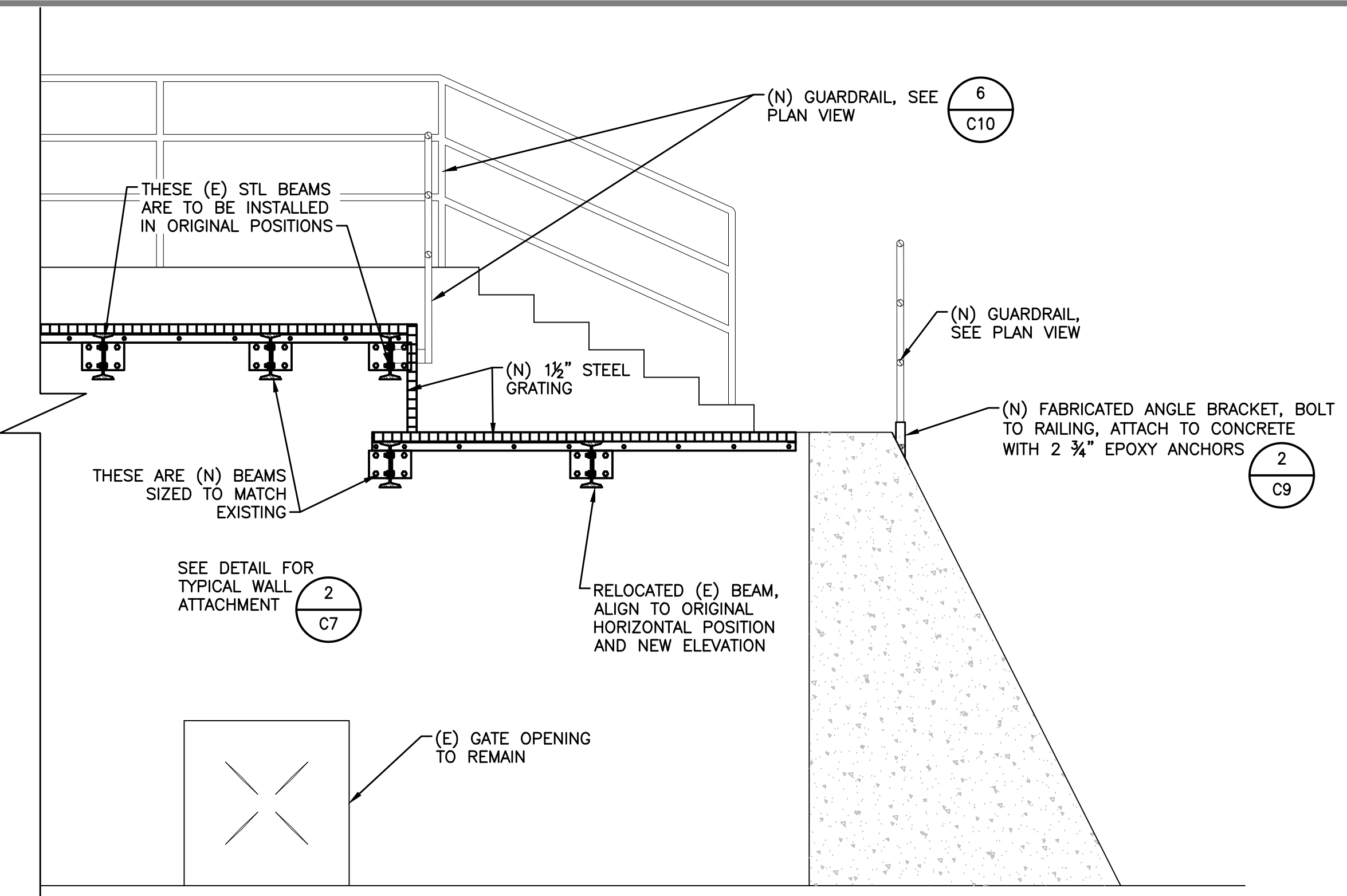
RENOVATION

NOTES:
1. EXISTING STEEL BEAMS TO BE REMOVED, ABRASIVE BLASTED AND RECOATED. REINSTALL BEAMS AND BRACKETS IN THEIR ORIGINAL LOCATIONS.

SECTION DEMO A
SCALE: 1/2" = 1'-0" C1-C4



DEMOLITION



RENOVATION

SECTION B
SCALE: 1/2" = 1'-0" C1-C4

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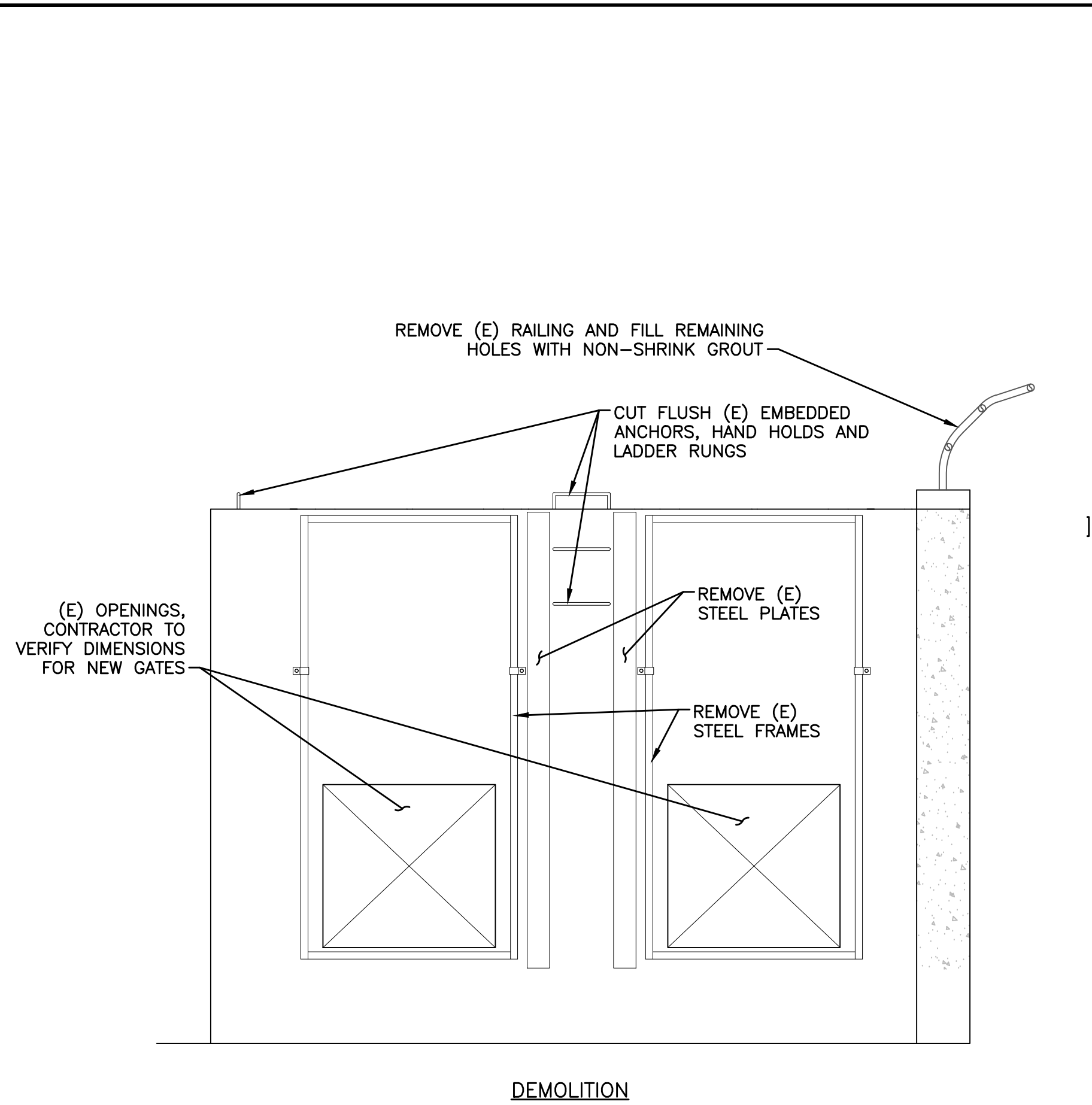


Rancho Murieta Community Services District
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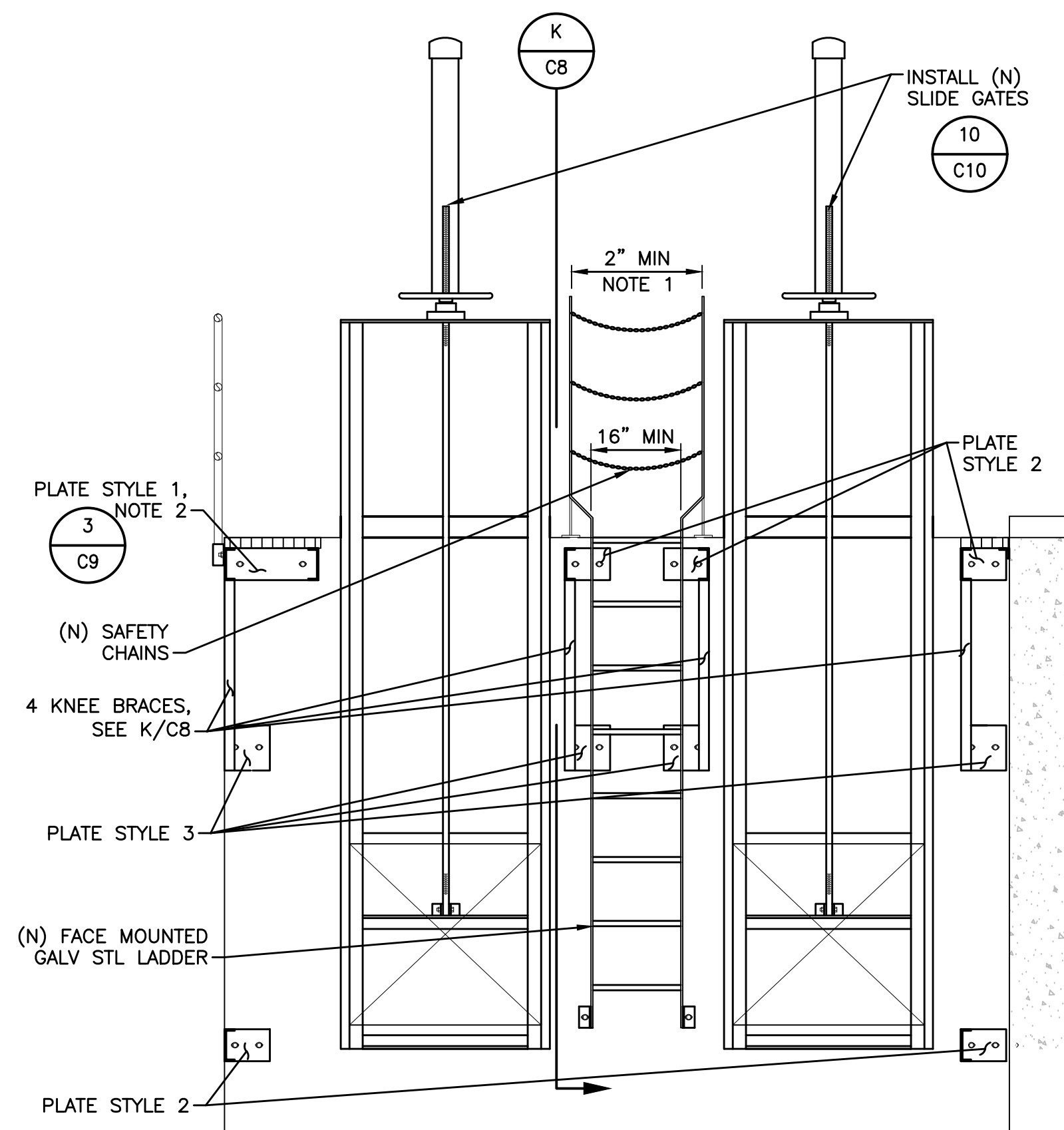
RANCHO MURIETA COMMUNITY SERVICES
GRANLEES RAW WATER INTAKE IMPROVEMENTS

SECTIONS & DETAILS 1

DRAWING NUMBER	C5
SHEET NUMBER	7 OF 12



DEMOLITION

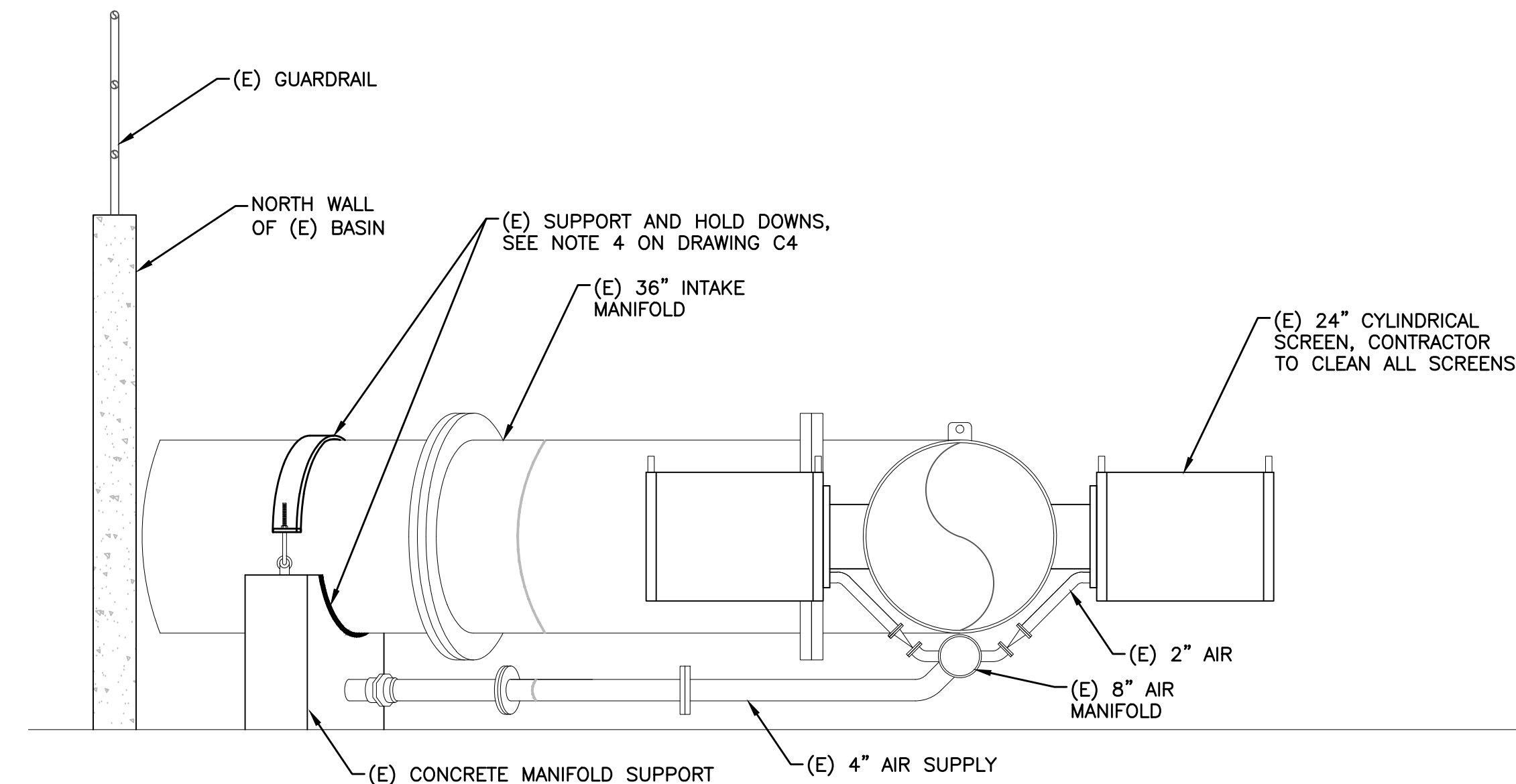


RENOVATION

SECTION C
SCALE: 1/2" = 1'-0"

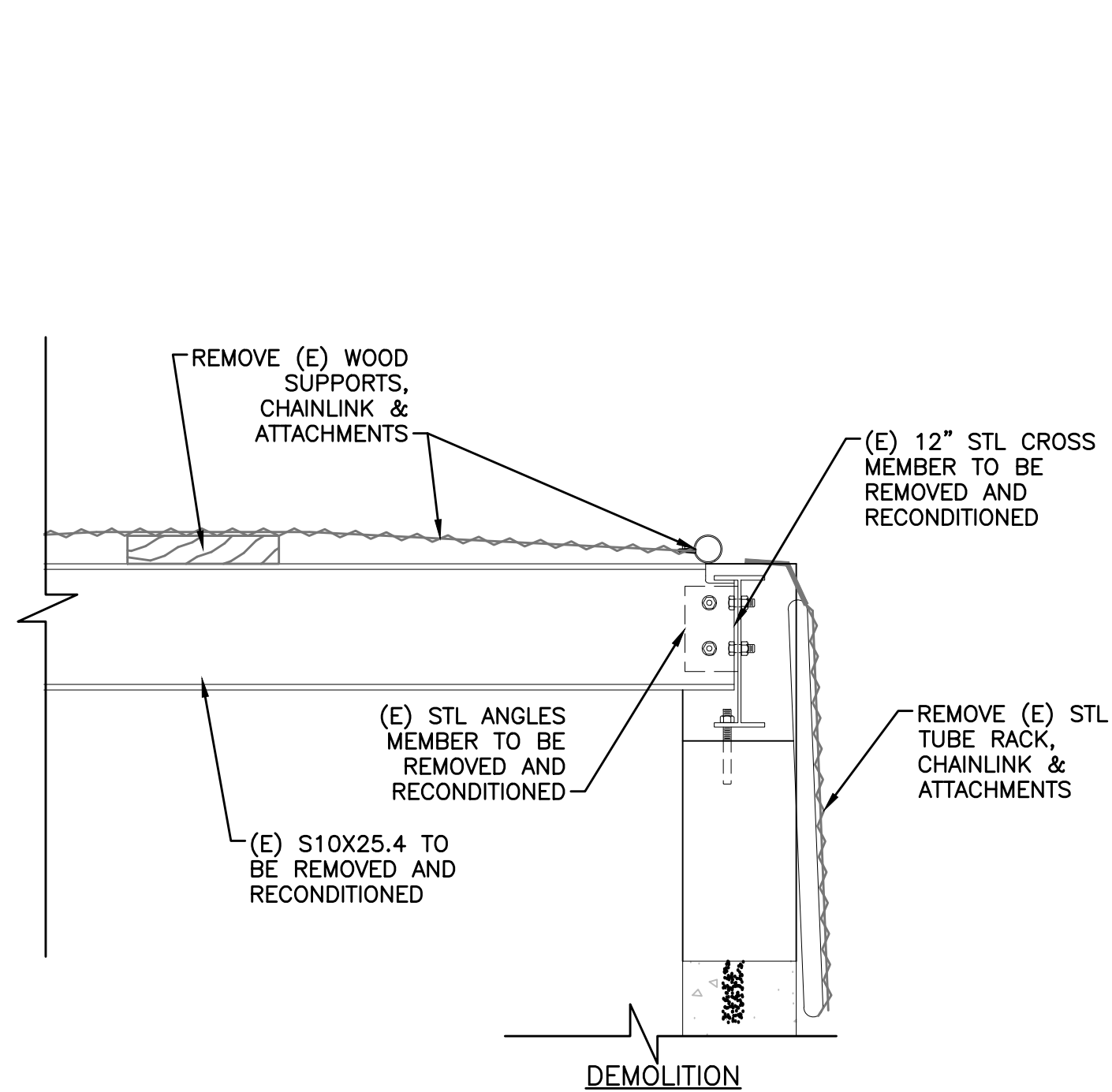
NOTES:

1. FIELD VERIFY DIMENSIONS OF THE LADDER AND CLEARANCES BASED ON NEW SLIDE GATE DIMENSIONS.
2. SEE DETAIL 3/C9 FOR ALL INTAKE RACK MOUNTING PLATE STYLES.

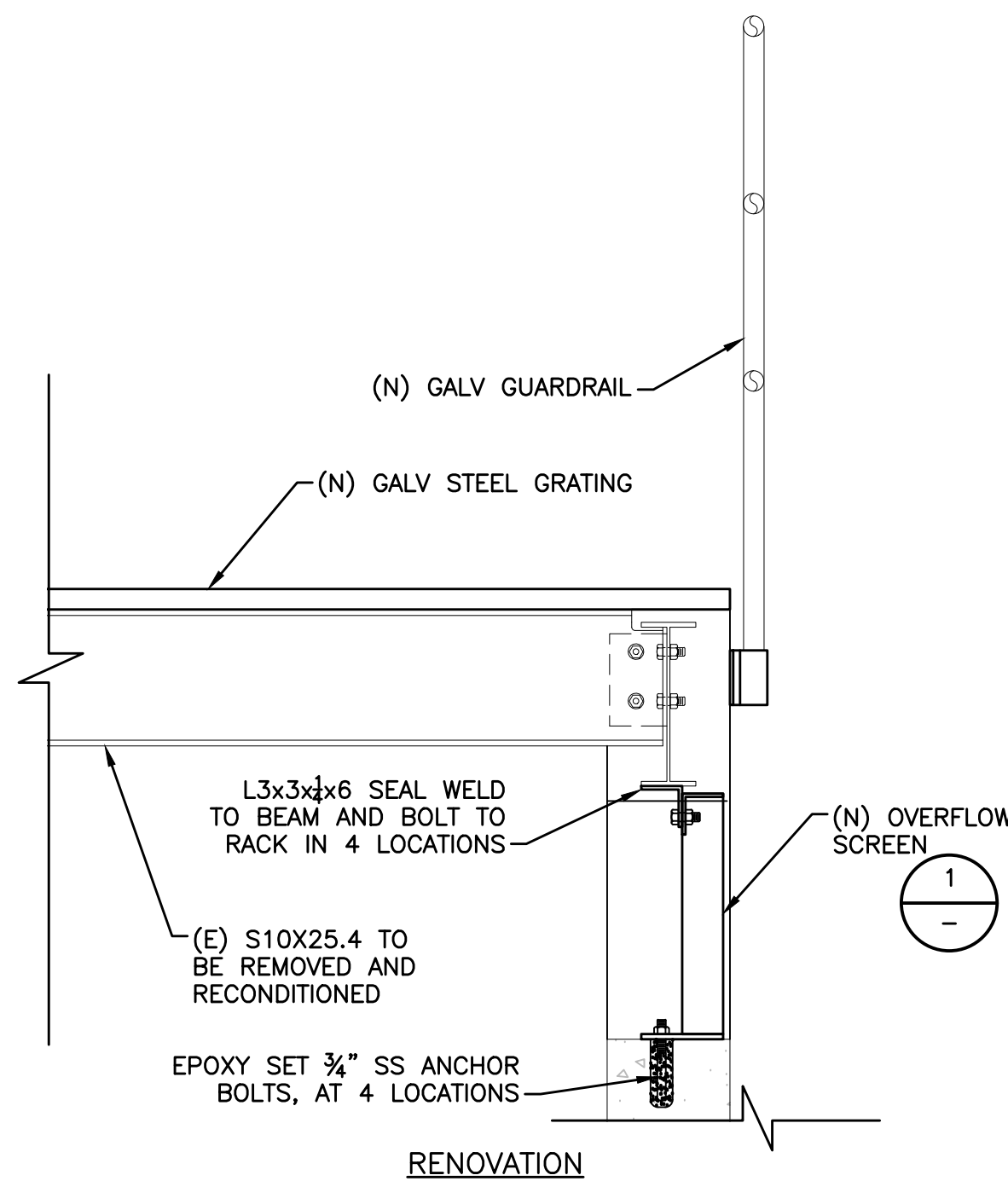


SCREENING MANIFOLD SECTION E
SCALE: 1/2" = 1'-0"

C2,C4



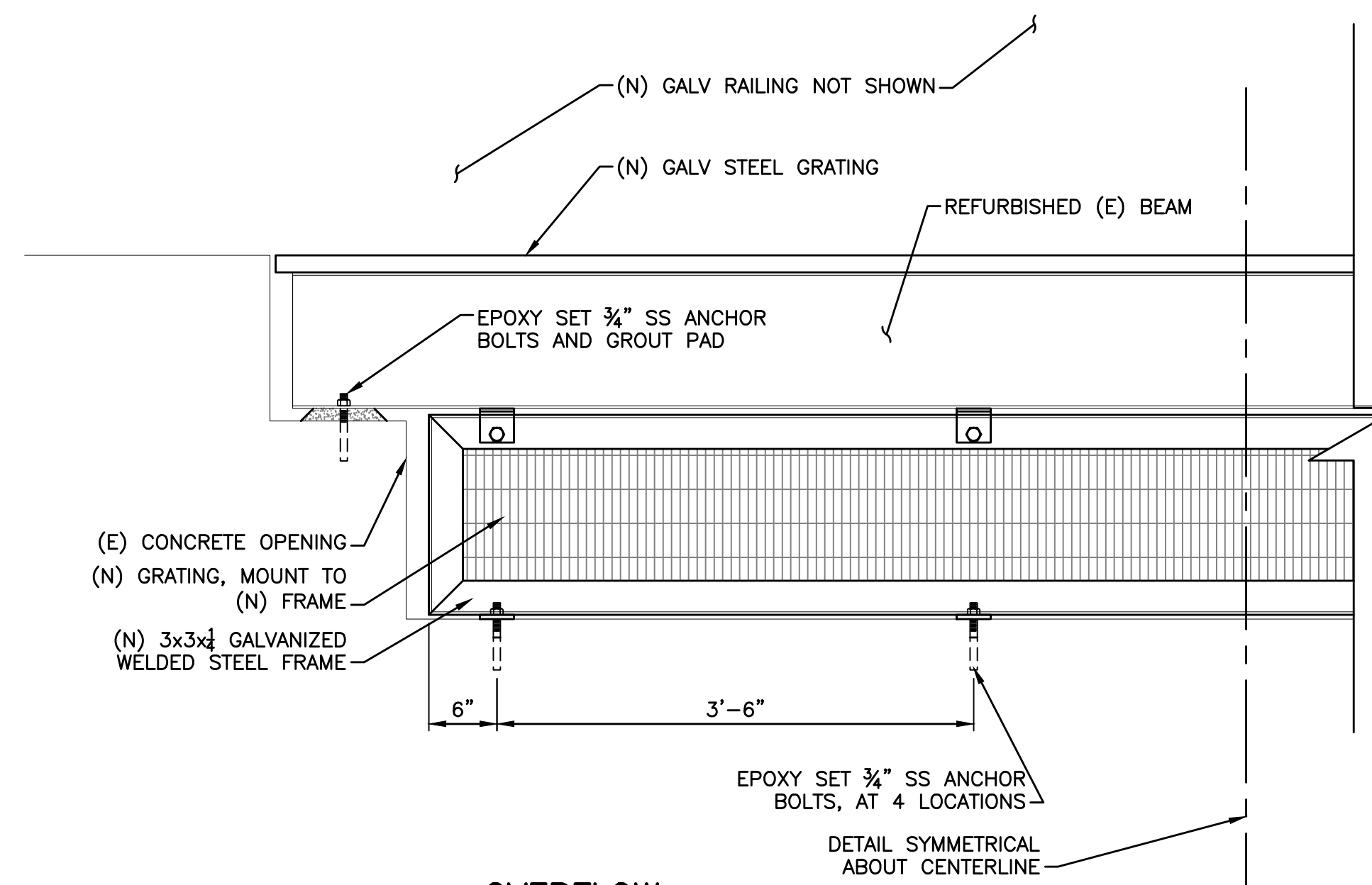
DEMOLITION



RENOVATION

SECTION D
SCALE: 1" = 1'-0"

C1,C2



OVERFLOW SCREEN DETAIL 1
SCALE: 1" = 1'-0"

C1

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REVISIONS				
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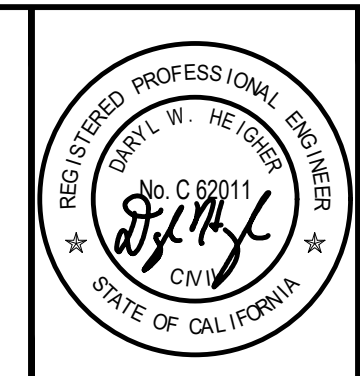
WARNING

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DESIGNED: D. HEIGHER
DRAWN: J. CADE
CHECKED: J. DOMENICHELLI
DATE: FEBRUARY 2024

DOMENICHELLI & ASSOCIATES

Domenicelli & Associates
5180 Golden Foothill Pkwy, Suite 220 Ph: (916) 933-1997
El Dorado Hills, CA 95762 Fax: (916) 933-4778



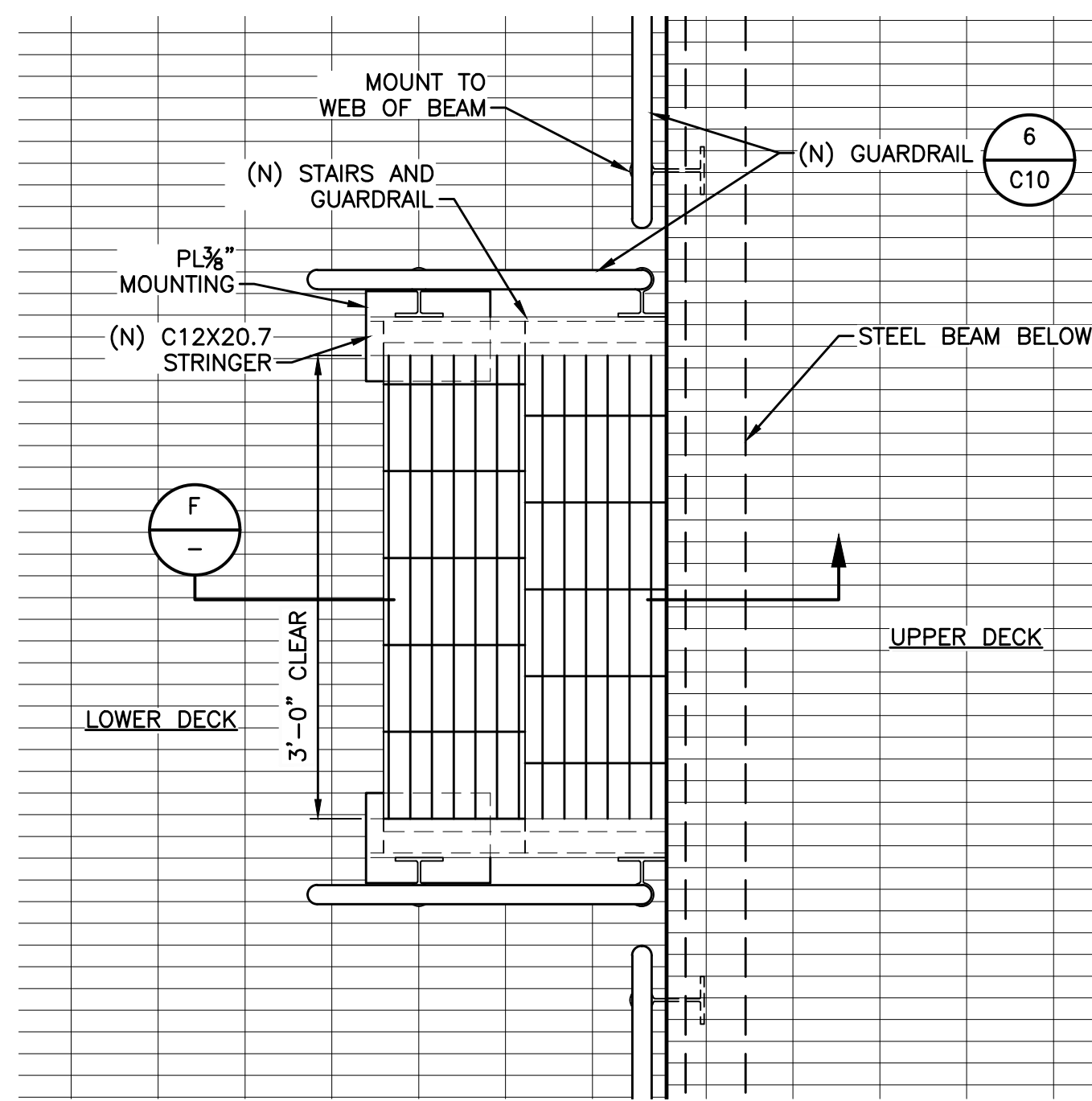
Rancho Murieta
Community Services District

15160 Jackson Road, Rancho Murieta
(916) 354 3700

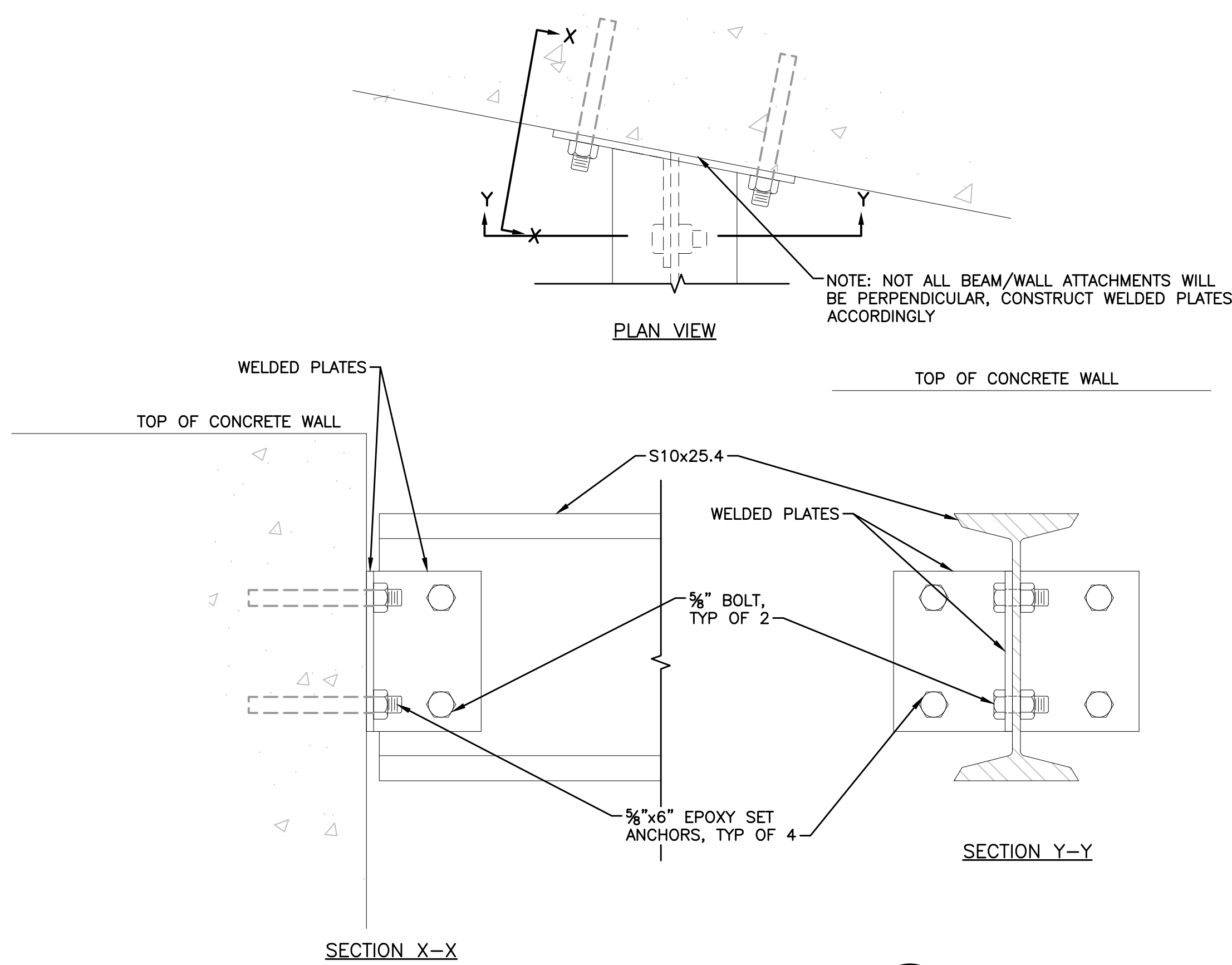
RANCHO MURIETA COMMUNITY SERVICES
GRANLEES RAW WATER INTAKE IMPROVEMENTS

SECTIONS & DETAILS 2

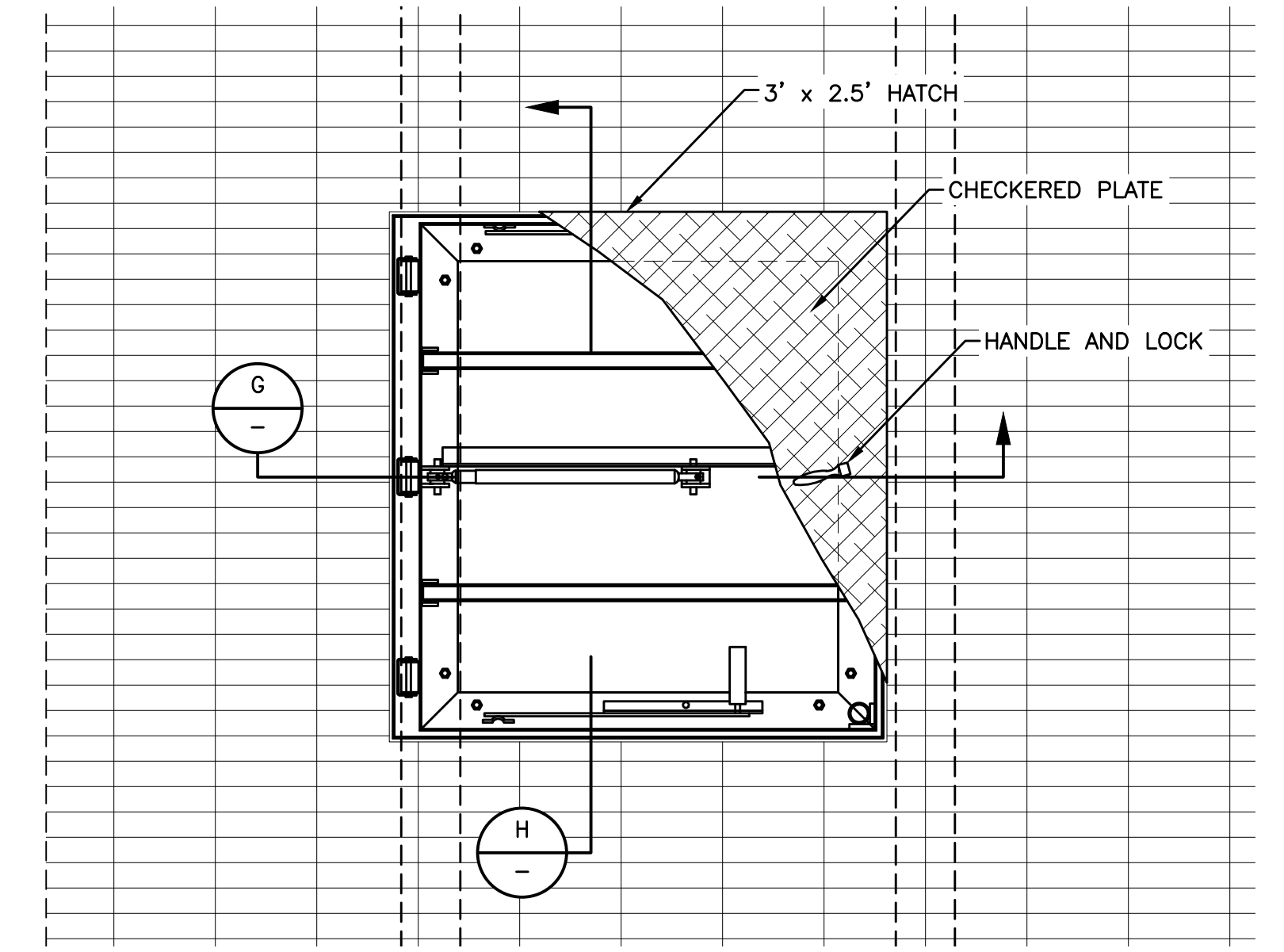
DRAWING NUMBER	C6
SHEET NUMBER	8 OF 12



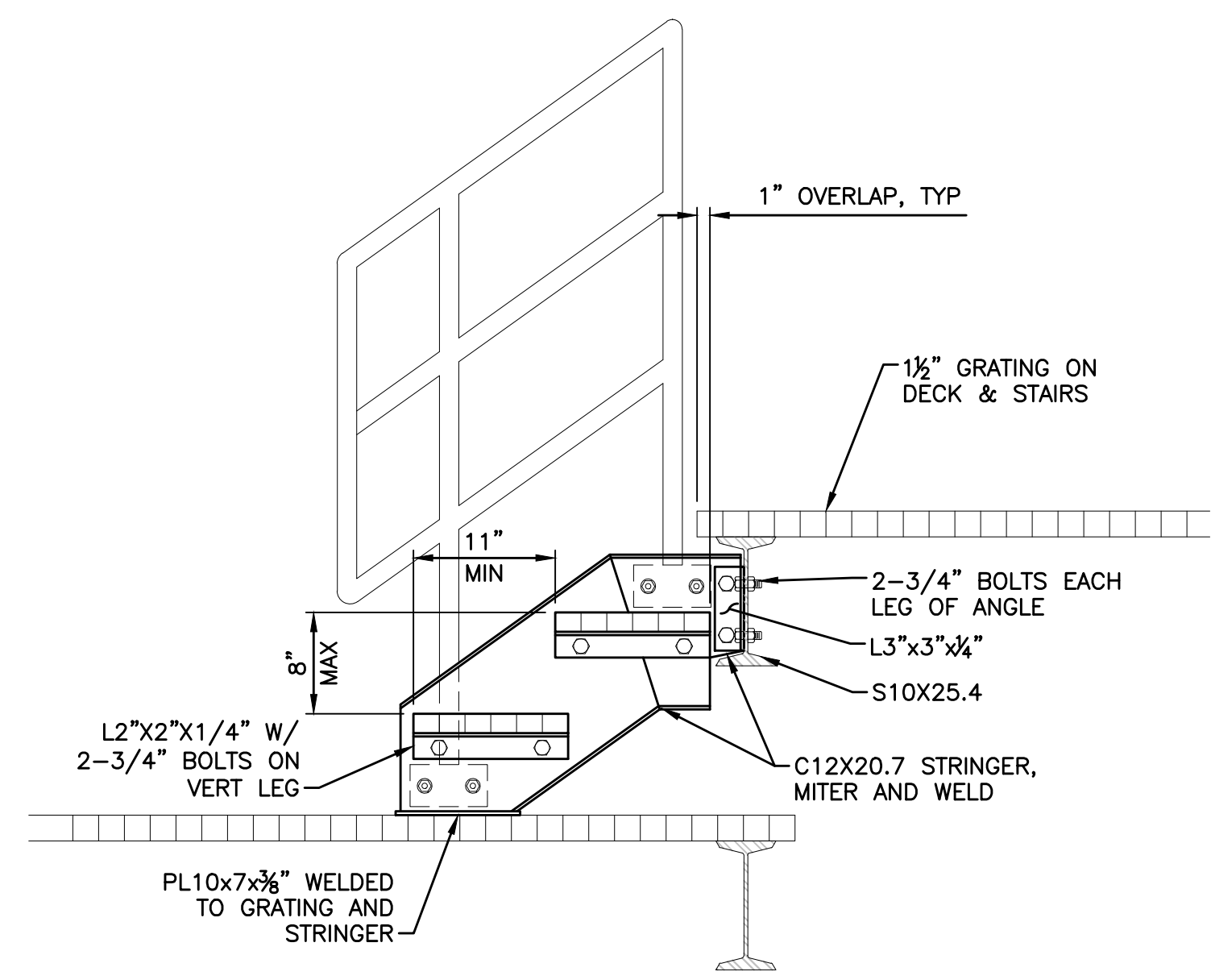
STAIR PLAN
SCALE: 1" = 1'-0"
1
C3



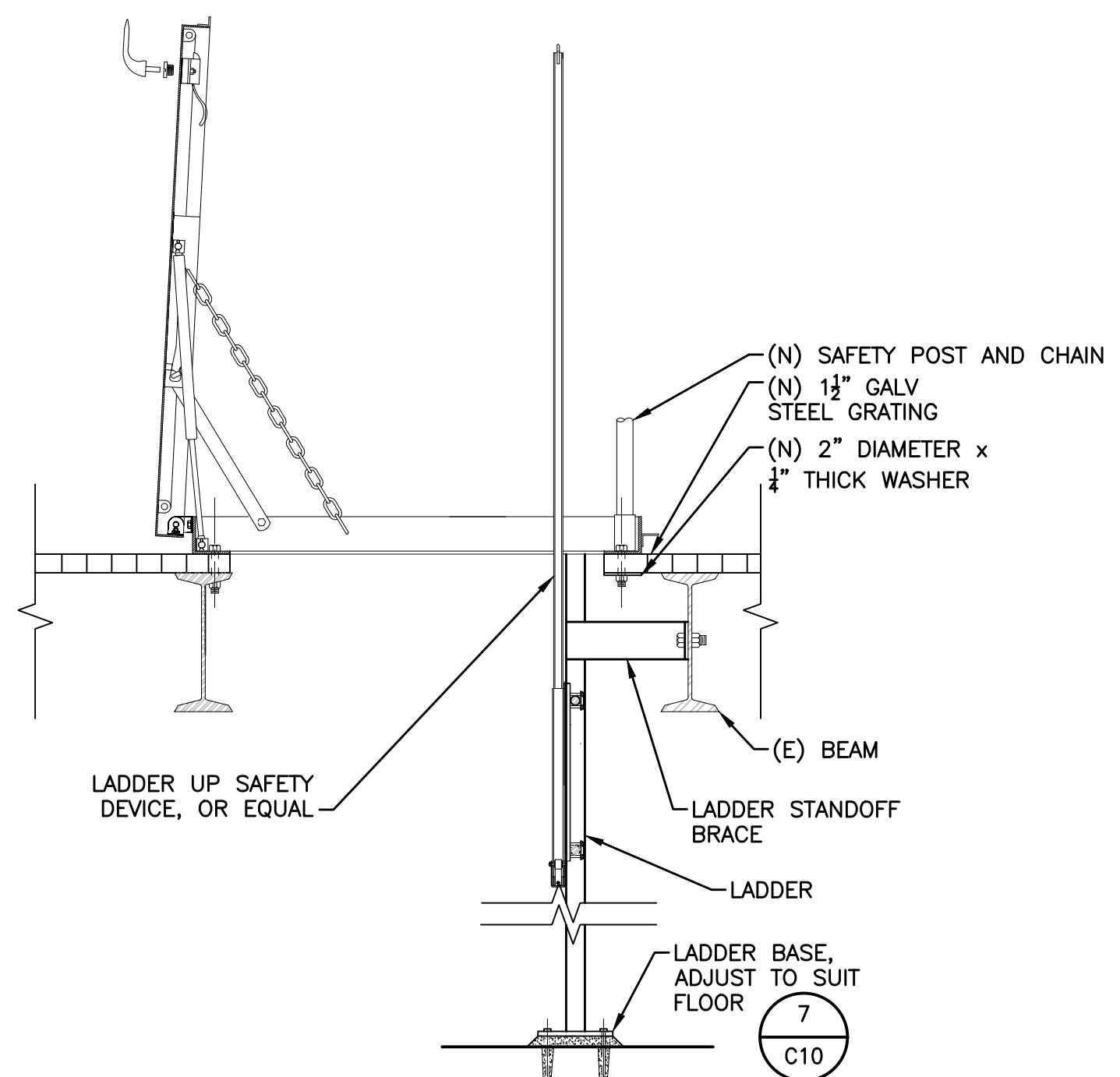
BEAM CONNECTION DETAIL
SCALE: 3" = 1'-0"
2
C5



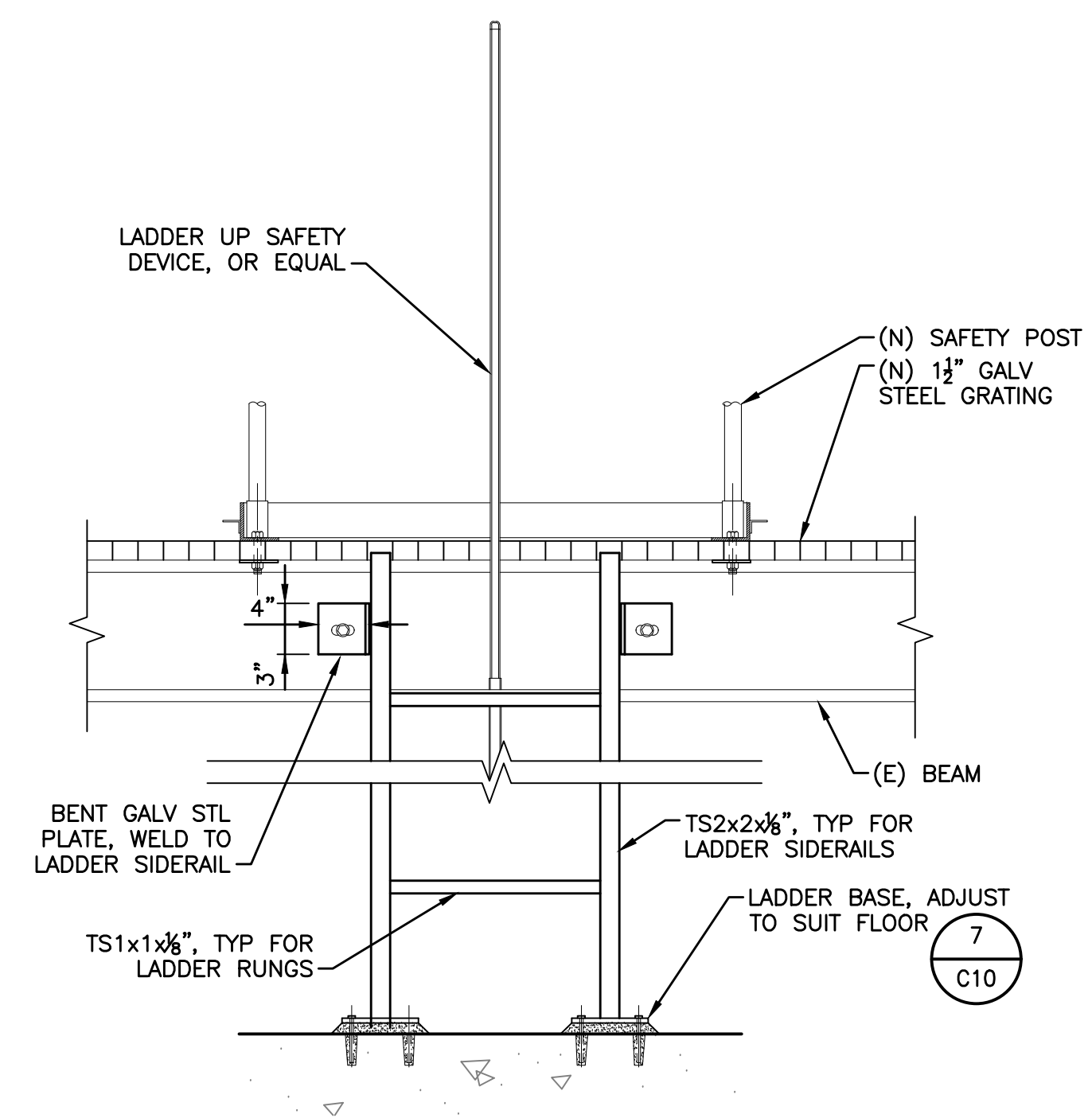
HATCH DETAIL PLAN
SCALE: 1" = 1'-0"
3
C3



STAIR SECTION
SCALE: 1" = 1'-0"
F



ACCESS HATCH SECTION G
SCALE: 1" = 1'-0"
G



ACCESS HATCH SECTION H
SCALE: 1" = 1'-0"
H

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REVISIONS				
REV	DESCRIPTION	DATE	BY	CHKD
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DRAWN: J. CADE
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DATE: FEBRUARY 2024

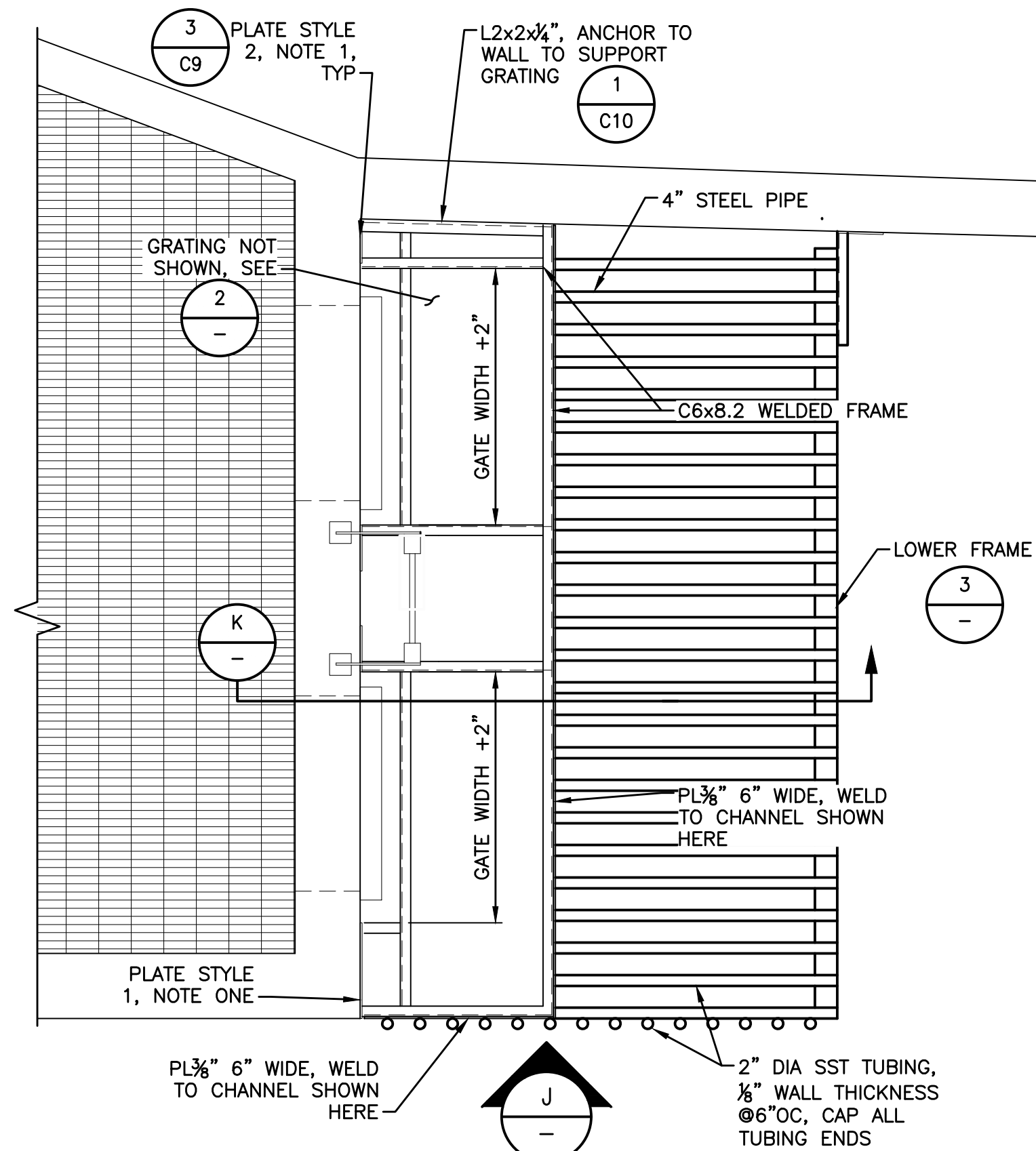
DOMENICHELLI & ASSOCIATES
Domenicelli & Associates
5180 Golden Foothill Pkwy, Suite 220 Ph: (916) 933-1997
El Dorado Hills, CA 95762 Fax: (916) 933-4778



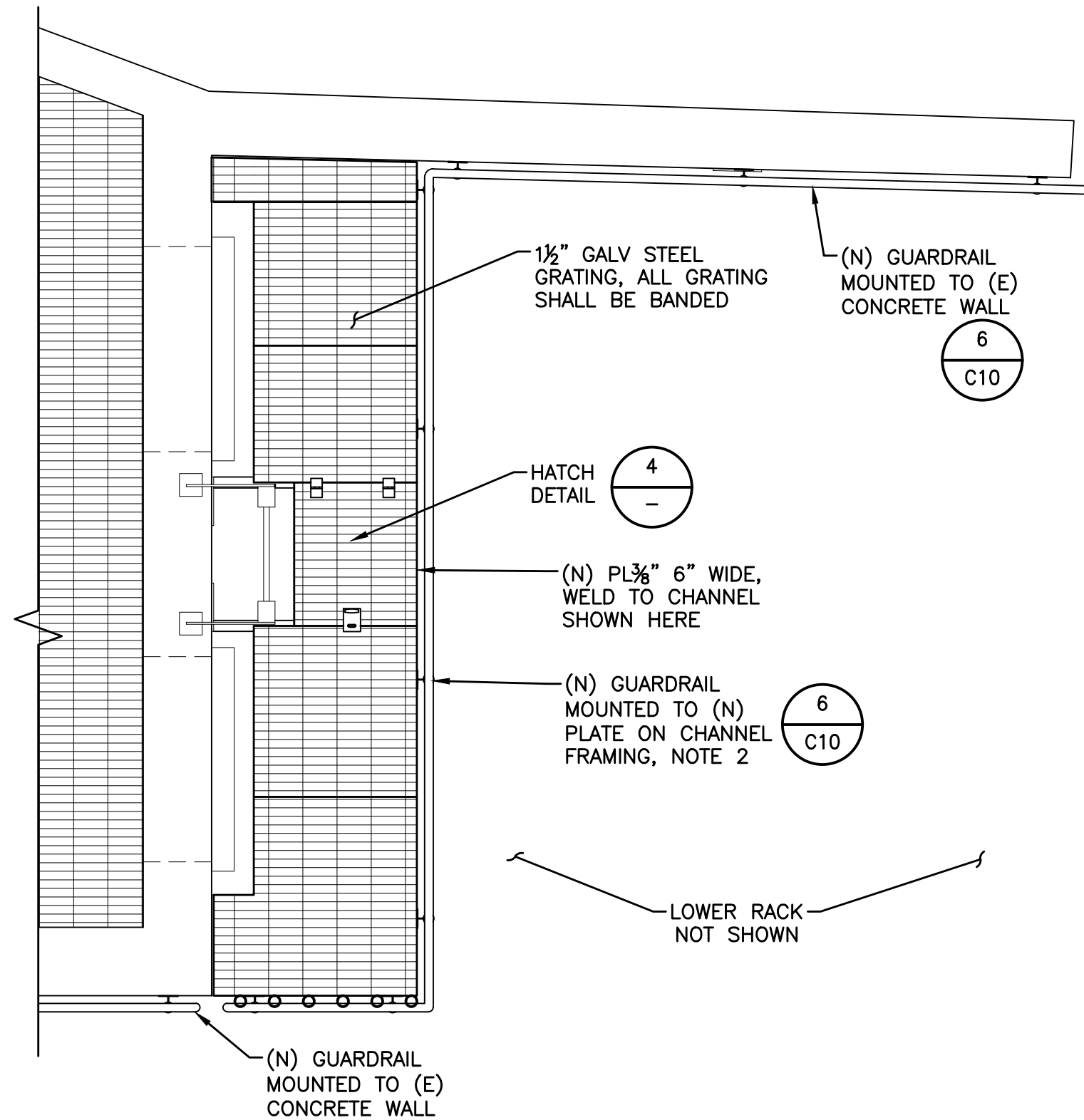
Rancho Murieta
Community Services District
15160 Jackson Road, Rancho Murieta
(916) 354 3700

RANCHO MURIETA COMMUNITY SERVICES
GRANLEES RAW WATER INTAKE IMPROVEMENTS
SECTIONS & DETAILS 3

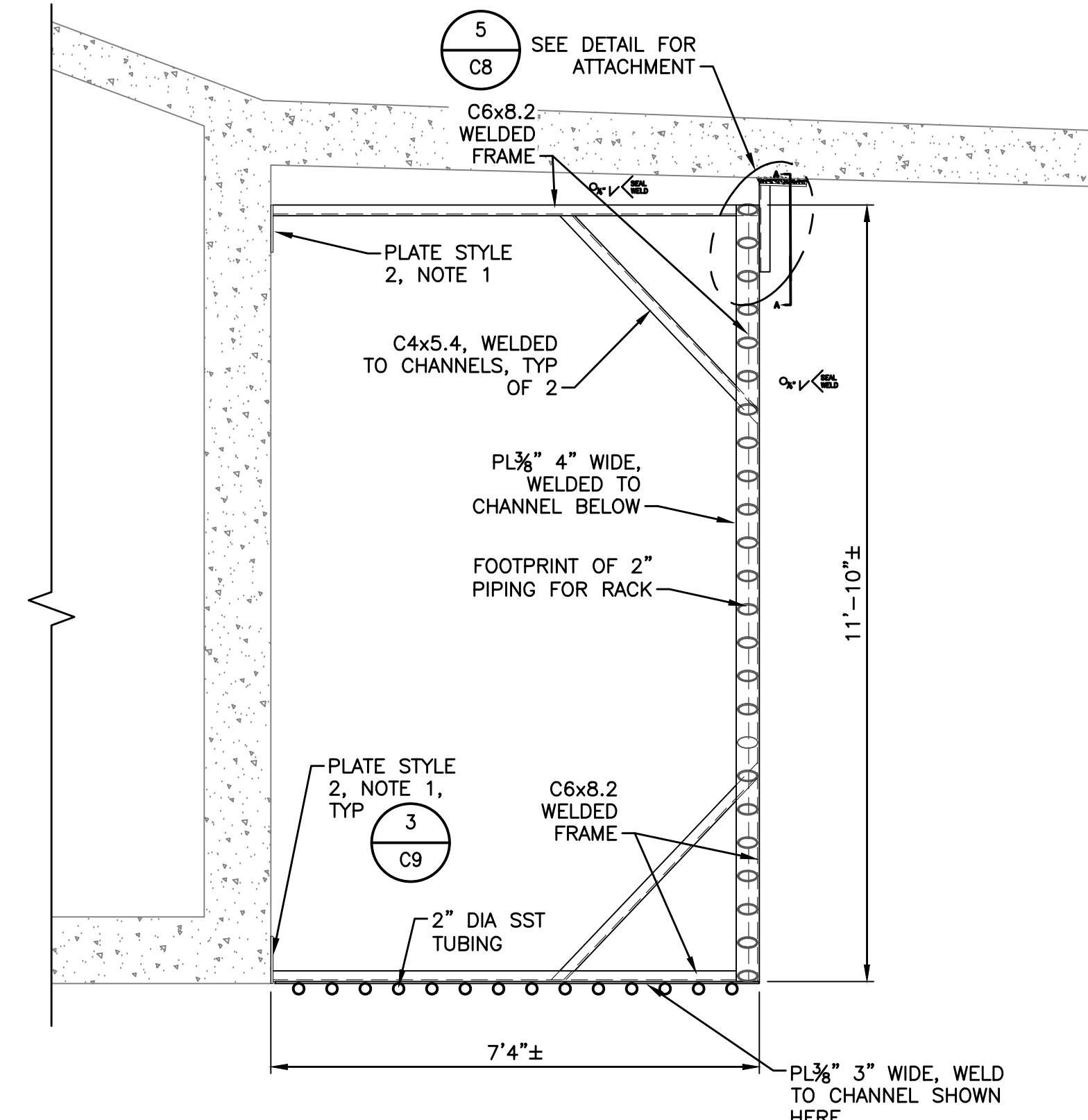
DRAWING NUMBER
C7
SHEET NUMBER
9 OF 12



INTAKE RACK PLAN & UPPER DECK FRAMING LAYOUT
SCALE: 1/2" = 1'-0"

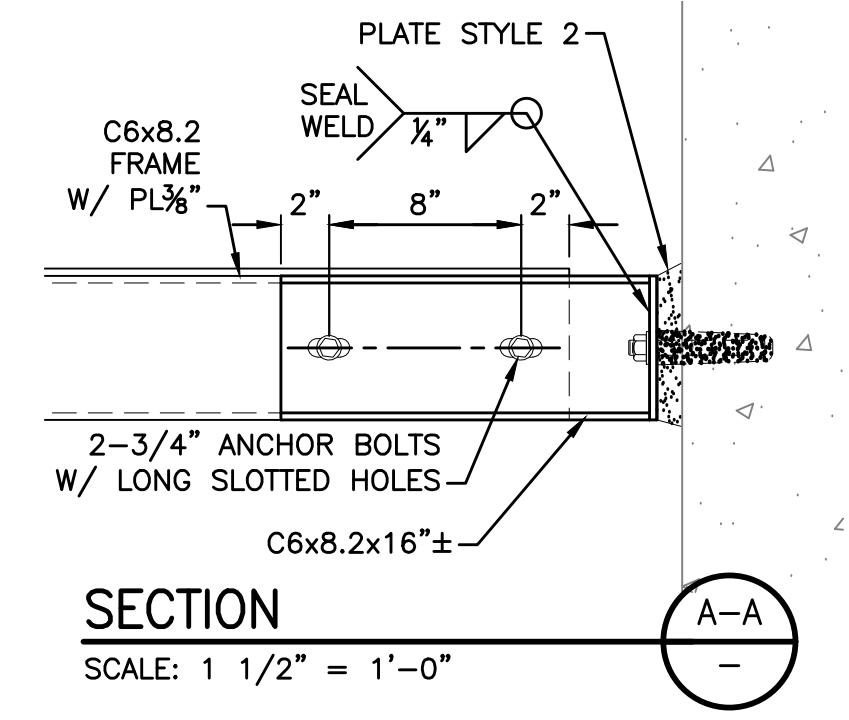


INTAKE DECK GRATING PLAN & GUARDRAIL LAYOUT
SCALE: 1" = 1'-0"

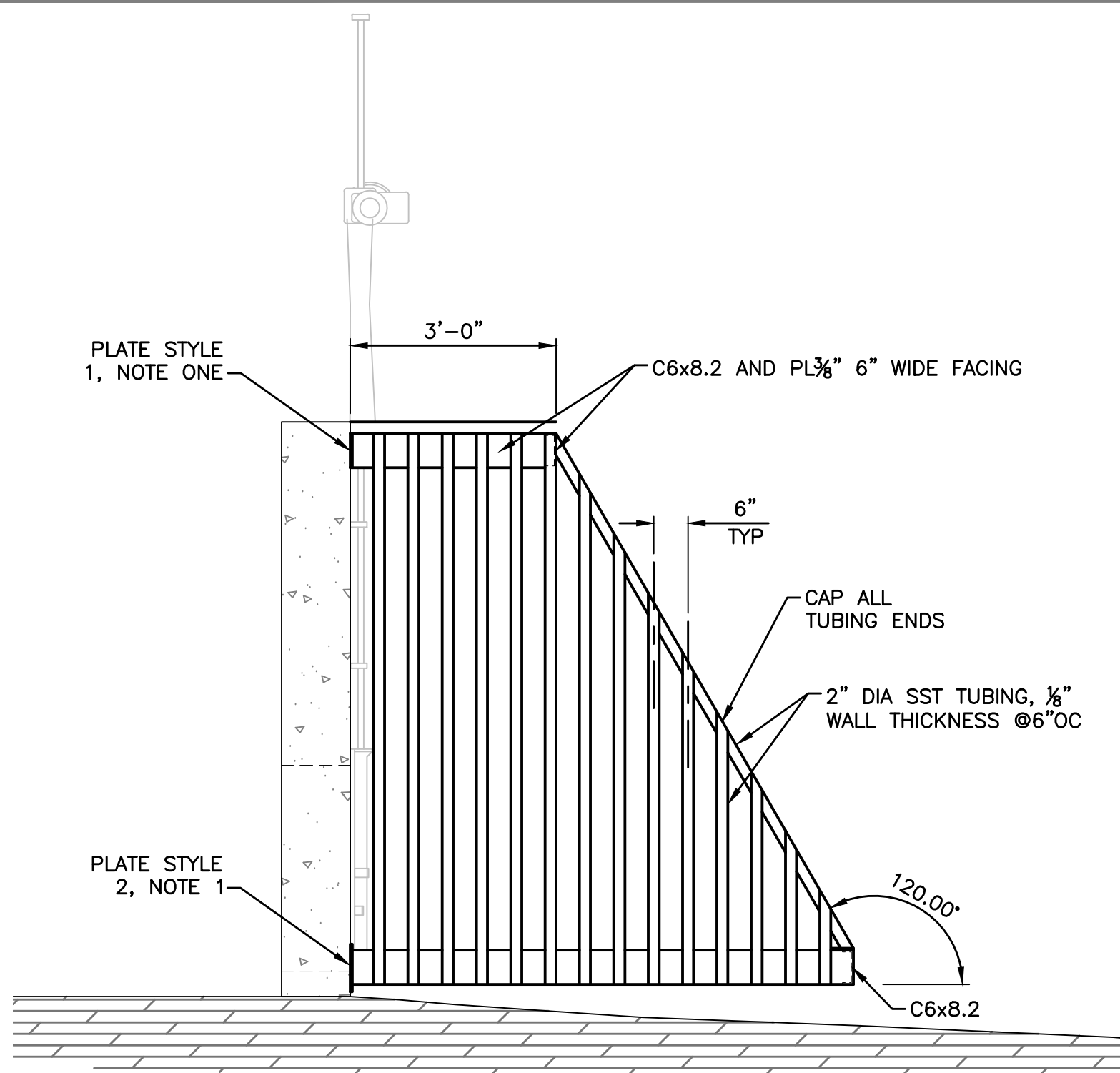


INTAKE BAR RACK LOWER FRAMING LAYOUT
SCALE: 1" = 1'-0"

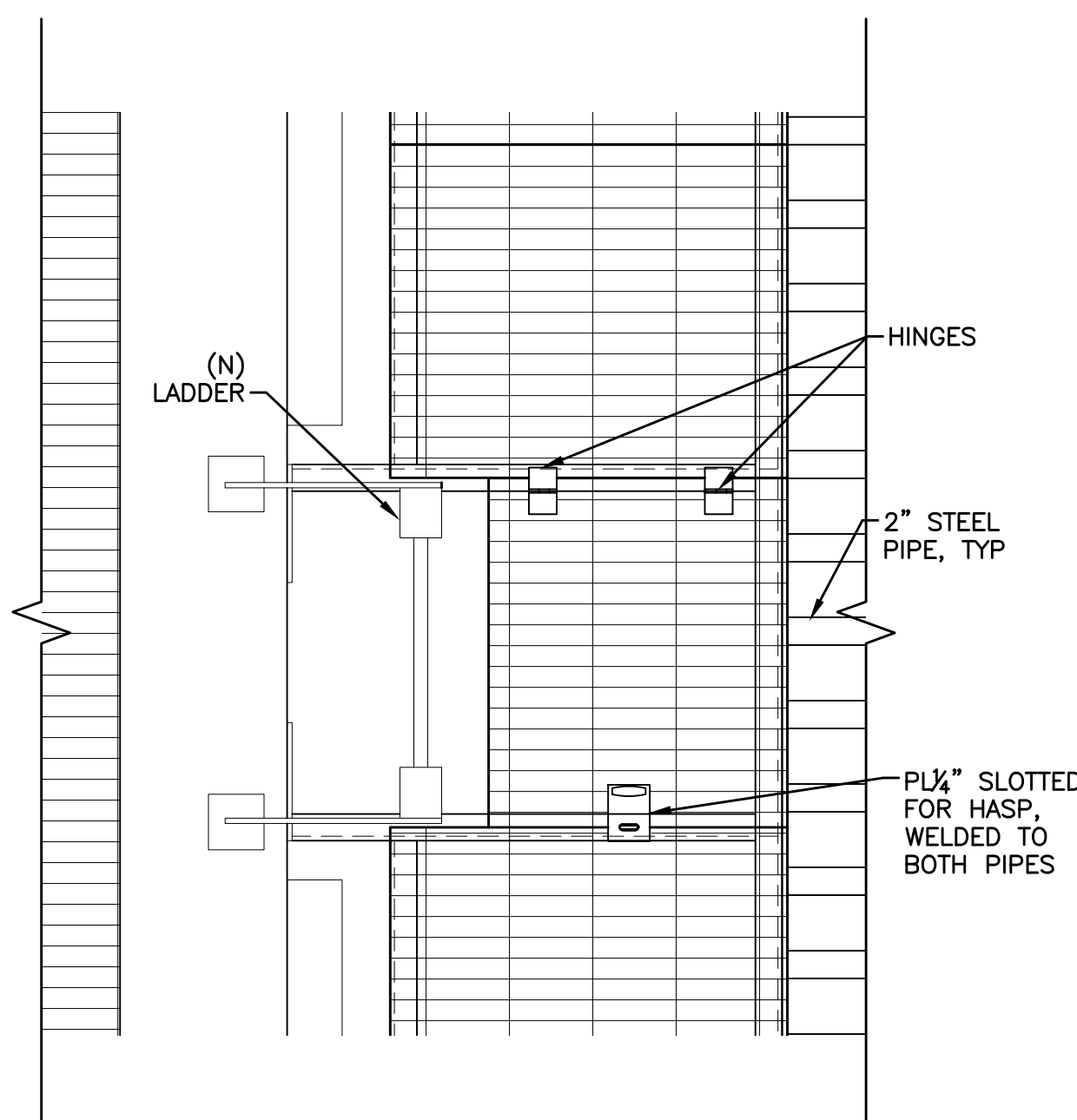
NOTES:
1. SEE DETAIL 3/C9 FOR ALL INTAKE RACK MOUNTING PLATE STYLES.
2. PLACE RAIL MOUNTINGS TO ACCOMMODATE THE INTAKE RACK PIPES.



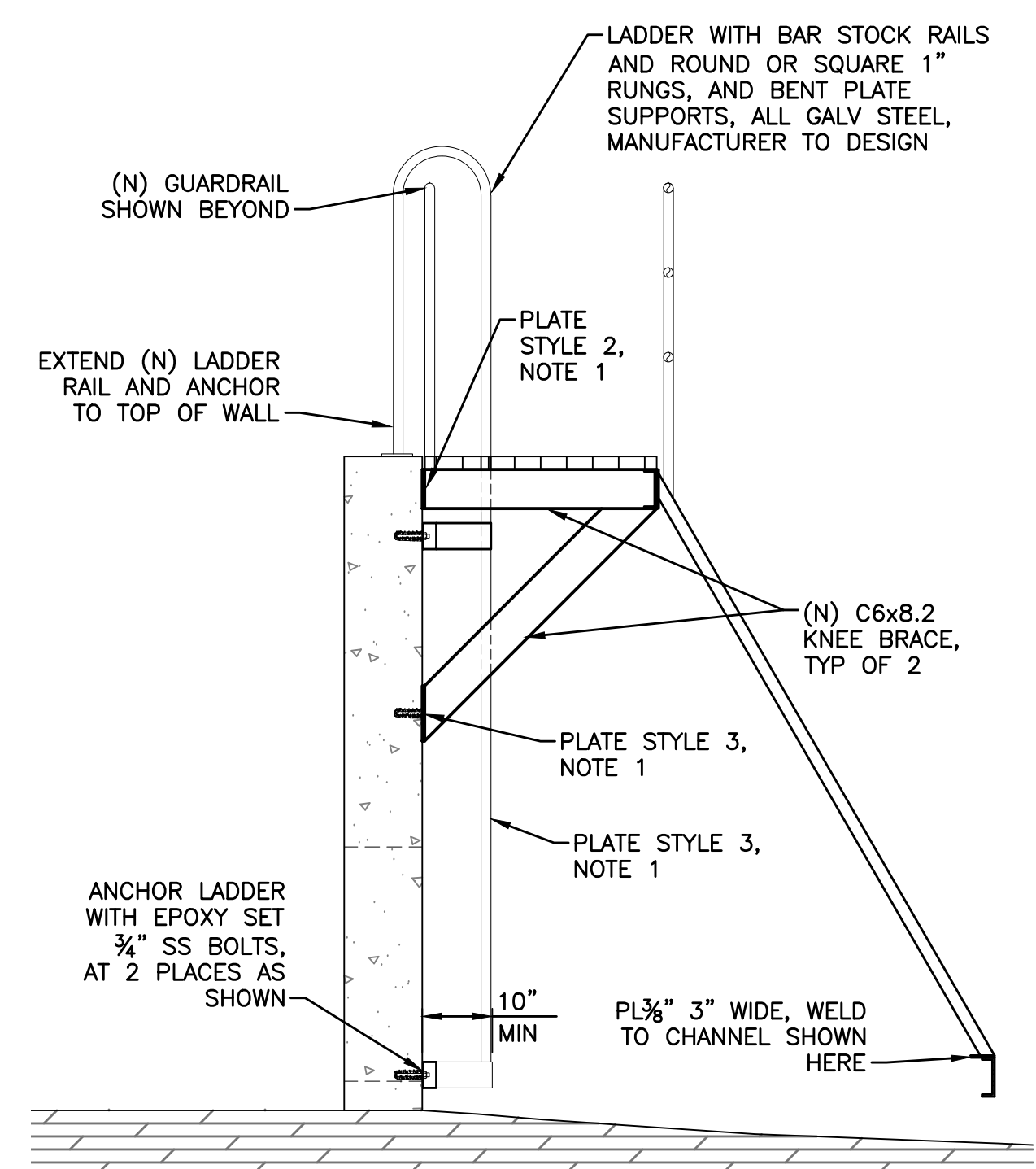
SECTION A-A
SCALE: 1 1/2" = 1'-0"



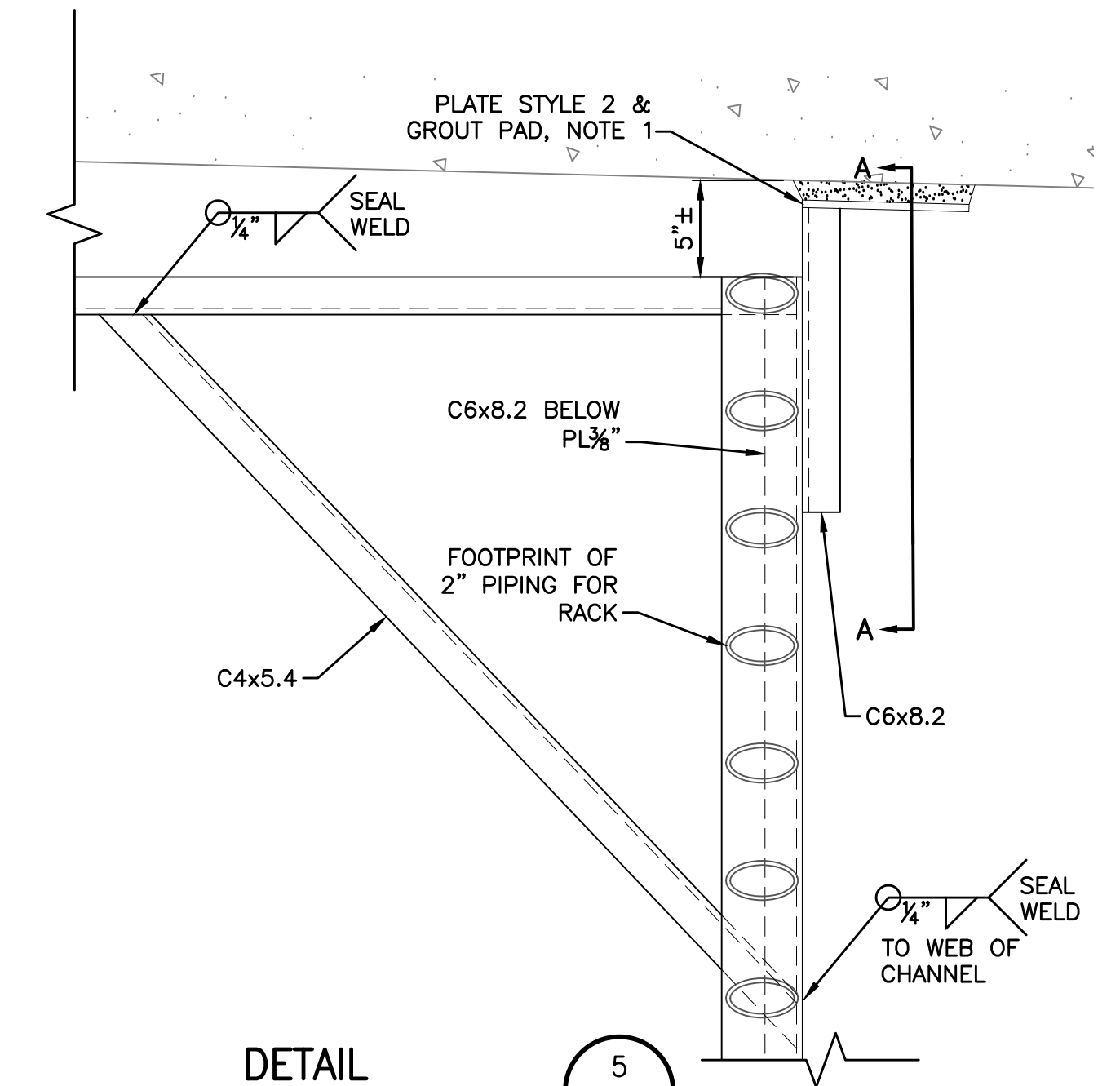
ELEVATION J
SCALE: 1/2" = 1'-0"



INTAKE RACK ACCESS HATCH 4
SCALE: 1" = 1'-0"



SECTION K
SCALE: 1/2" = 1'-0"



DETAIL 5
SCALE: 1 1/2" = 1'-0"

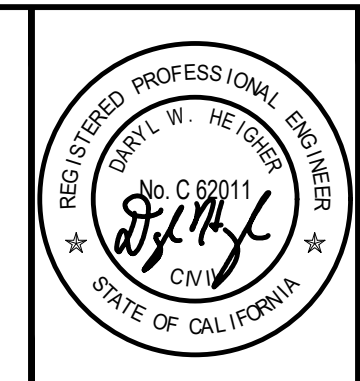
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REVISIONS				
REV	DESCRIPTION	DATE	BY	CHKD
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DATE: FEBRUARY 2024

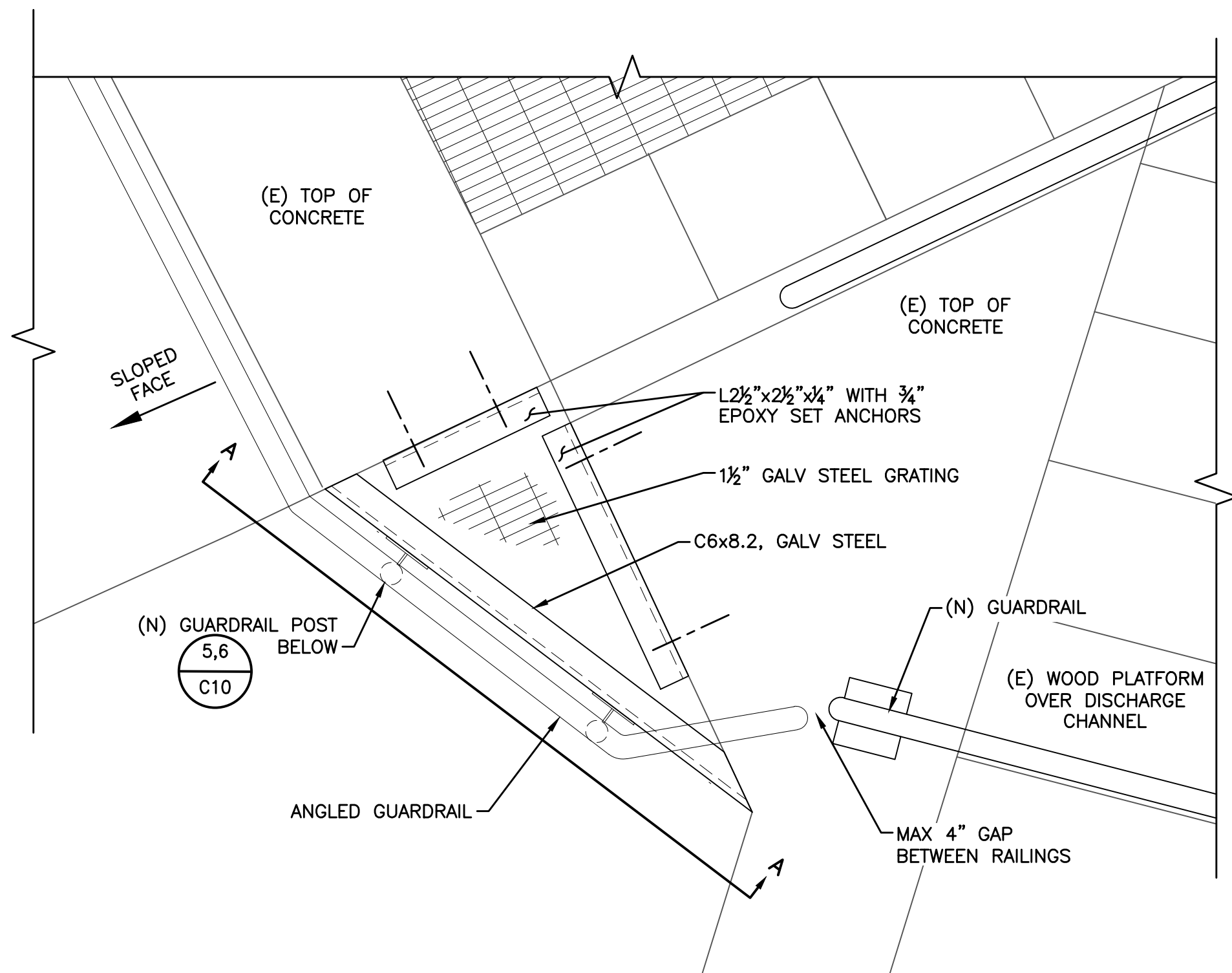
DOMENICHELLI & ASSOCIATES
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5180 Golden Foothill Pkwy, Suite 220 El Dorado Hills, CA 95762
Ph: (916) 933-1997 Fax: (916) 933-4778



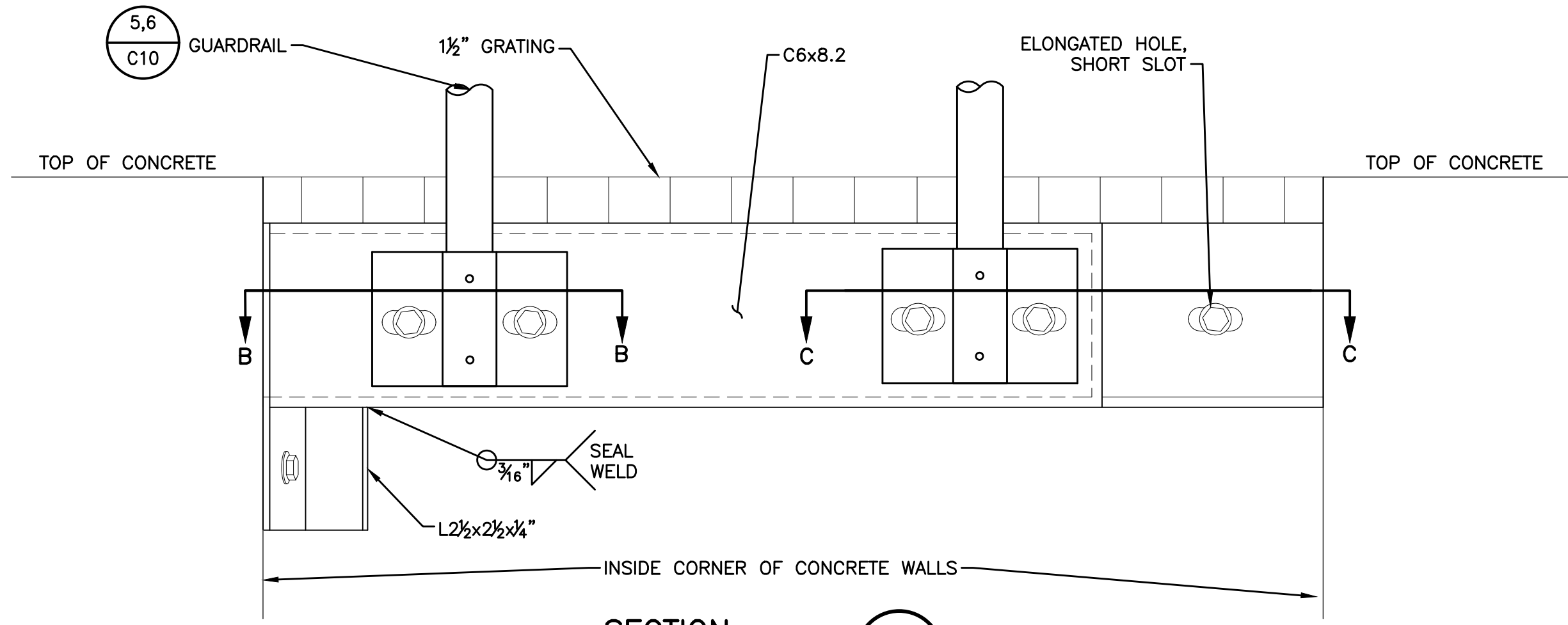
Rancho Murieta Community Services District
15160 Jackson Road, Rancho Murieta (916) 354 3700

RANCHO MURIETA COMMUNITY SERVICES GRANLEES RAW WATER INTAKE IMPROVEMENTS
SECTIONS & DETAILS 4

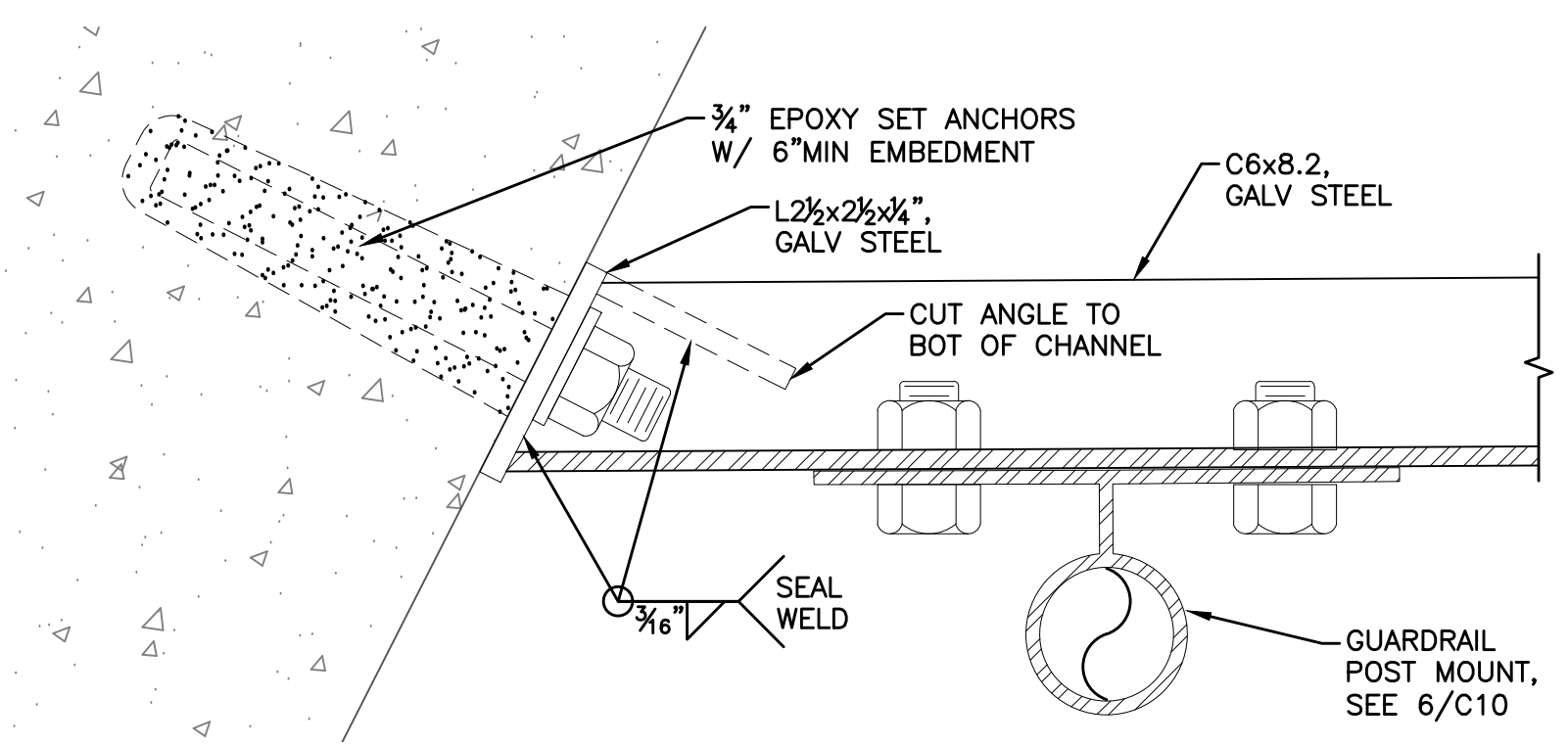
DRAWING NUMBER: C8
SHEET NUMBER: 10 OF 12



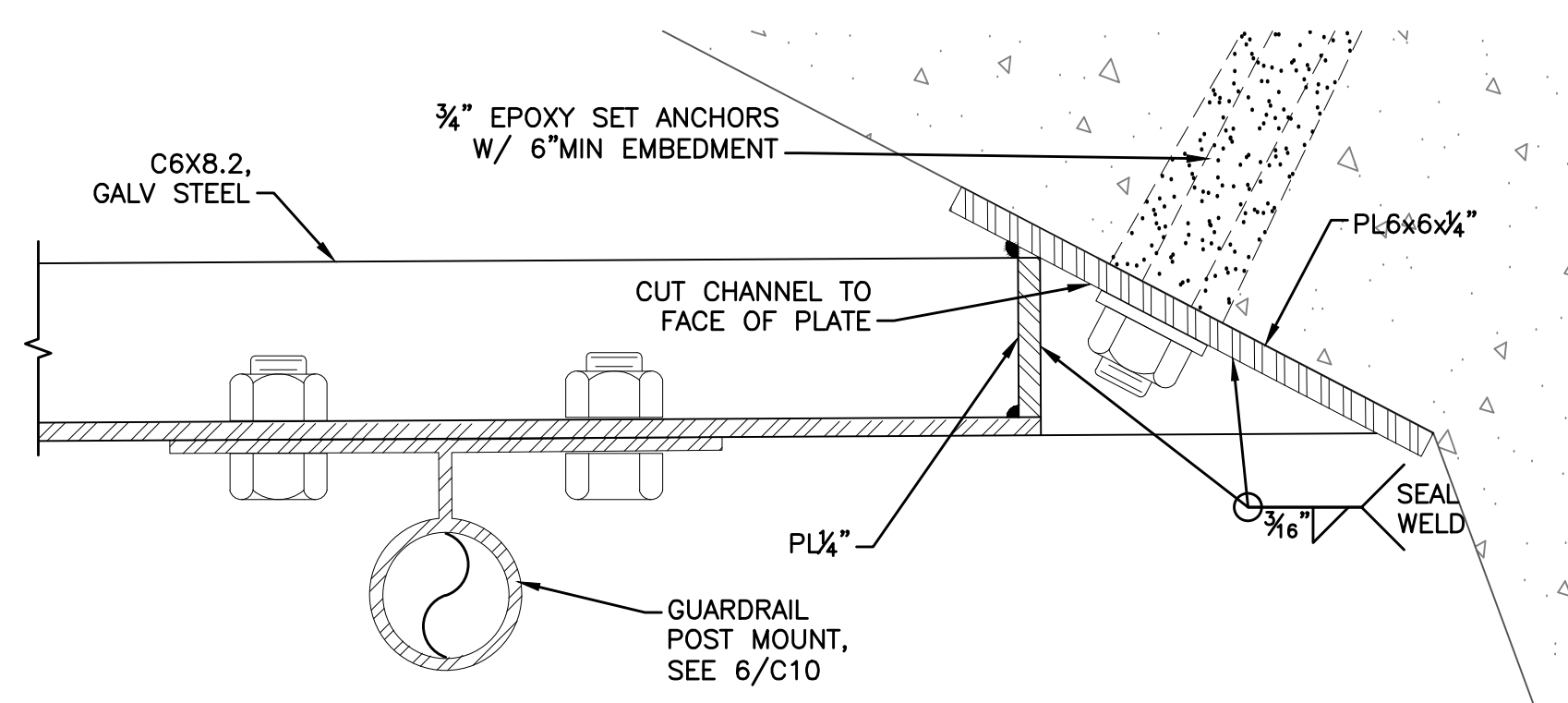
WALWAY FRAMING PLAN 1
SCALE: 1 1/2" = 1'-0"



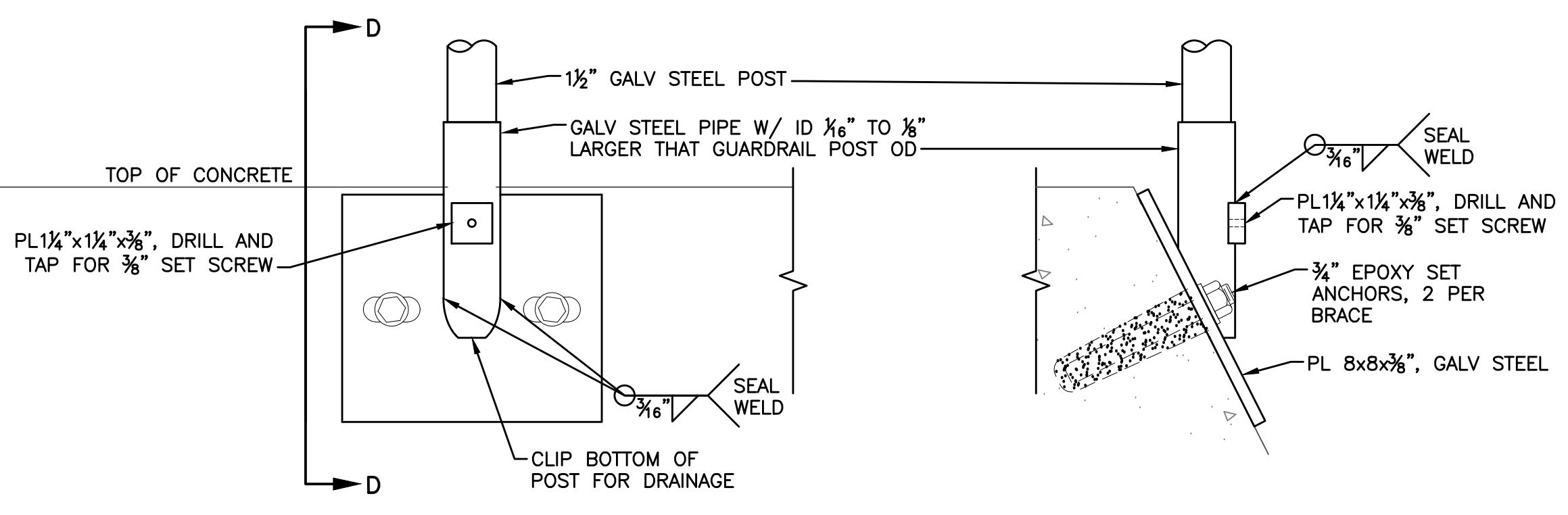
SECTION A-A
SCALE: 3" = 1'-0"



SECTION B-B
SCALE: 6" = 1'-0"

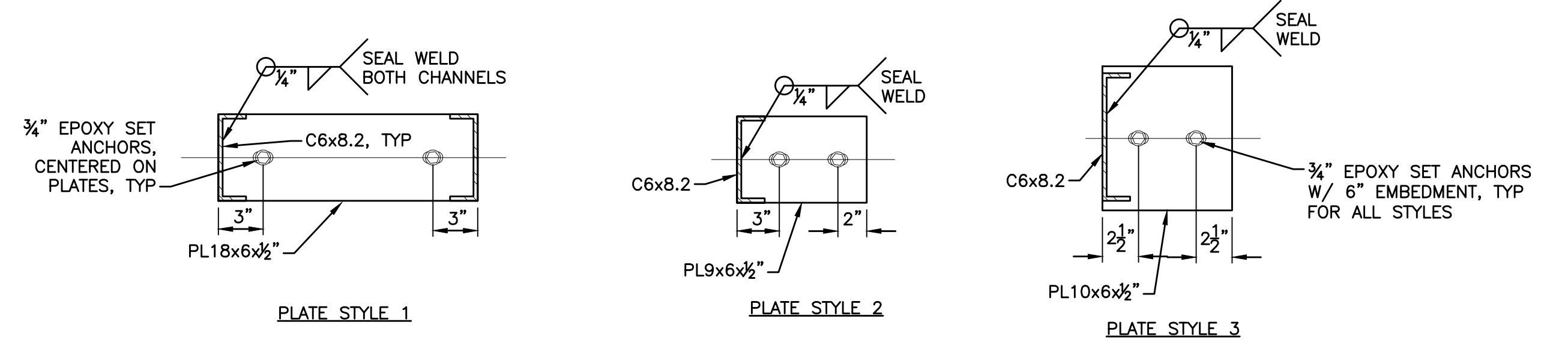


SECTION C-C
SCALE: 6" = 1'-0"

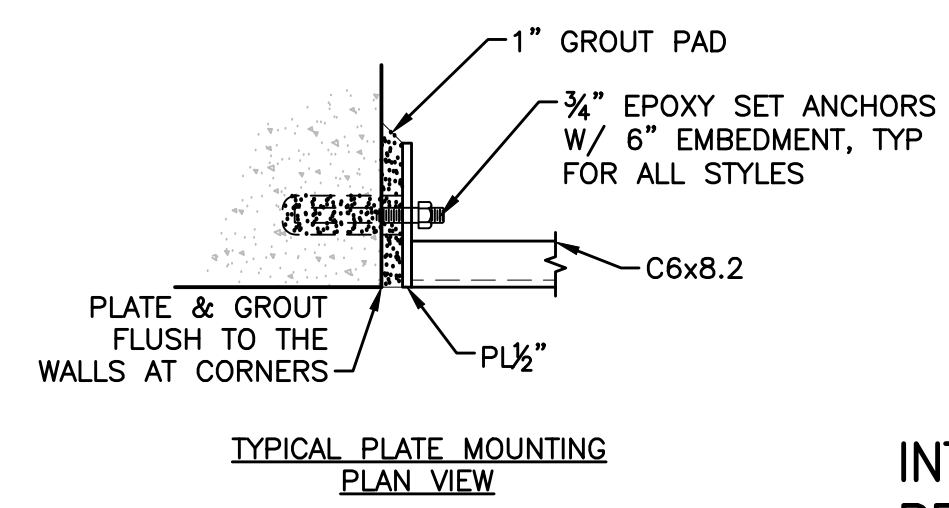


GUARDRAIL POST MOUNTING AON SLOPED SURFACE 2
SCALE: 3" = 1'-0"

SECTION D-D
SCALE: 3" = 1'-0"



INTAKE RACK BEARING PLATE STYLES 3
NTS
C6.8



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REVISIONS				
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WARNING

0 1"

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DESIGNED: D. HEIGHER

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CHECKED: J. DOMENICHELLI

DATE: FEBRUARY 2024

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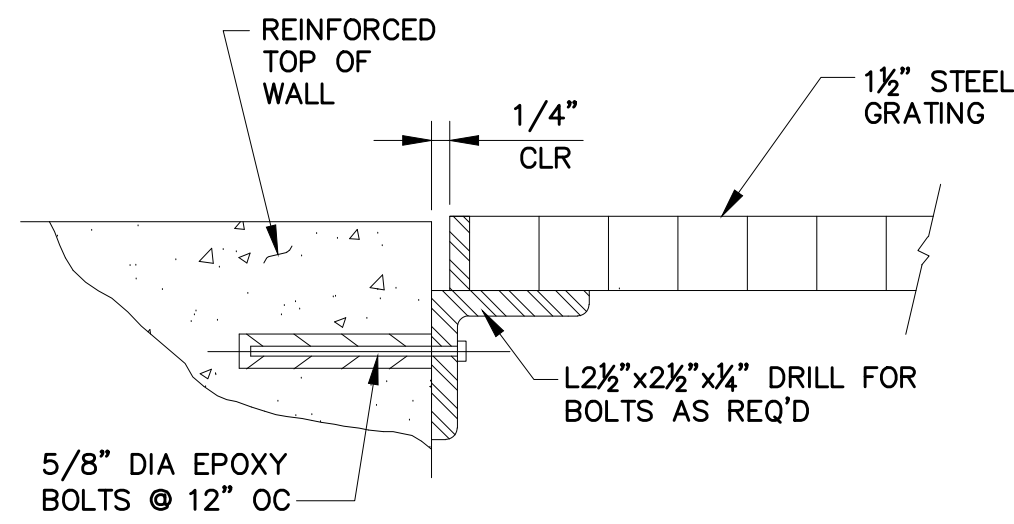
Rancho Murieta
Community Services District

15160 Jackson Road, Rancho Murieta
(916) 354 3700

RANCHO MURIETA COMMUNITY SERVICES
GRANLEES RAW WATER INTAKE IMPROVEMENTS

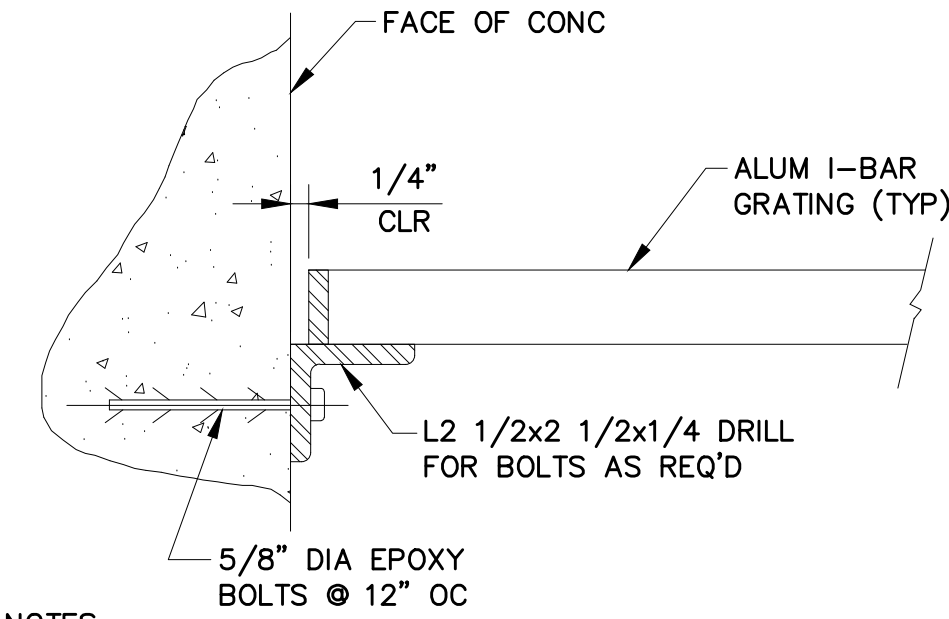
SECTIONS & DETAILS 5

DRAWING NUMBER	C9
SHEET NUMBER	11 OF 12



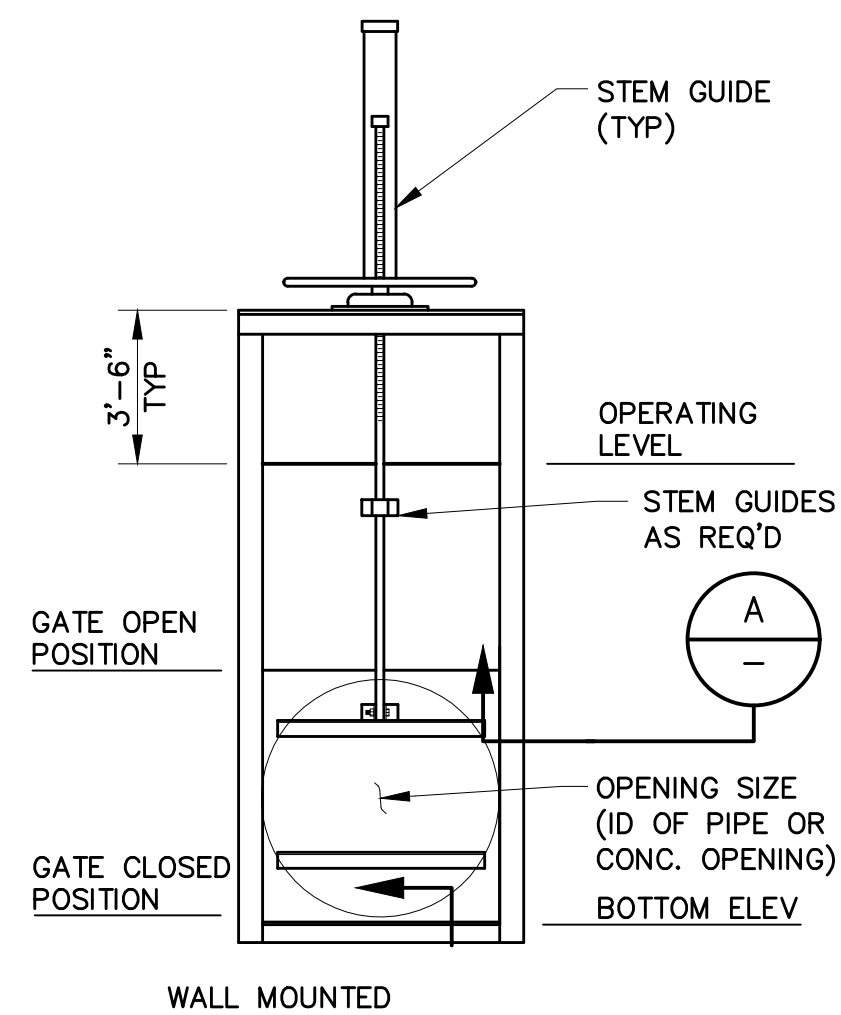
NOTES:
1. HOT DIP GALVANIZE ALL STEEL PARTS AFTER FABRICATION

GRATING SUPPORT DETAIL 1
NTS TYP

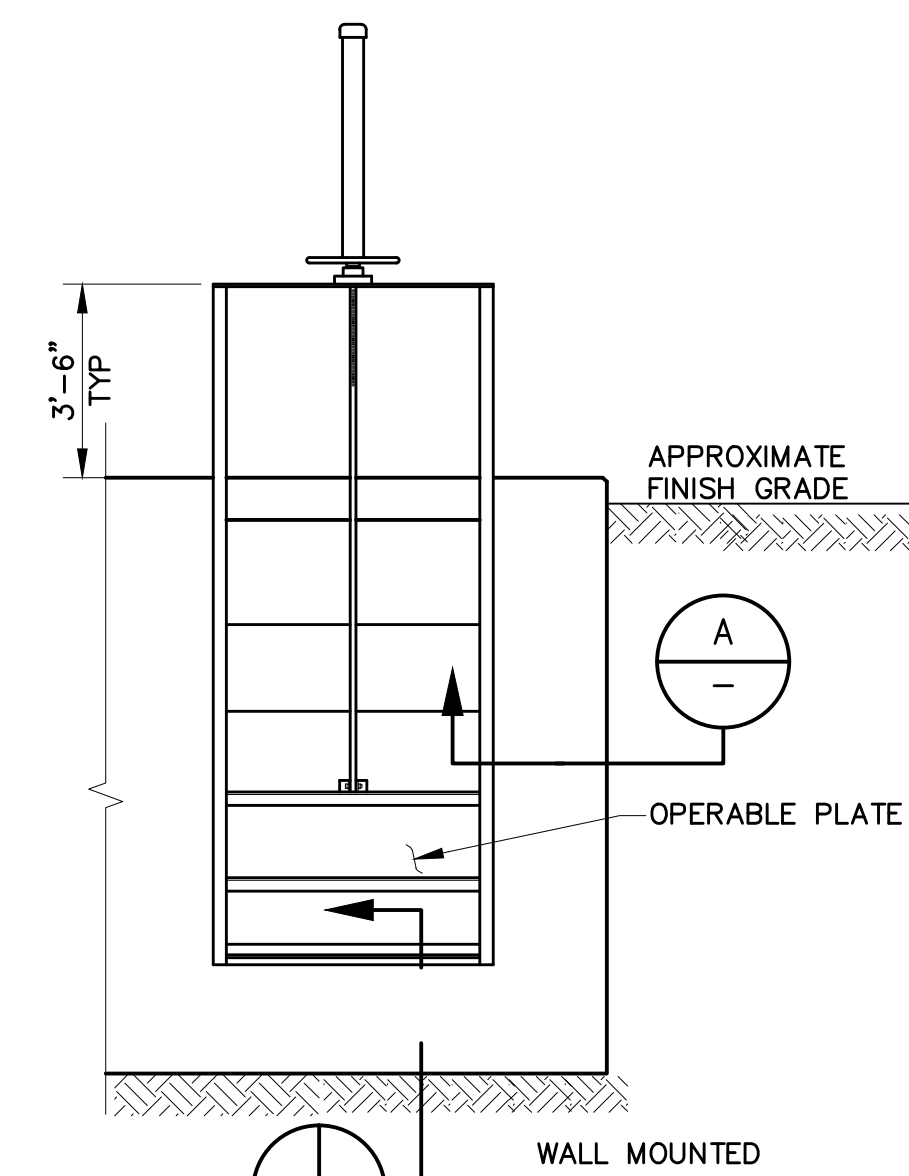


NOTES:
1. HOT DIP GALVANIZE ALL STEEL PARTS AFTER FABRICATION

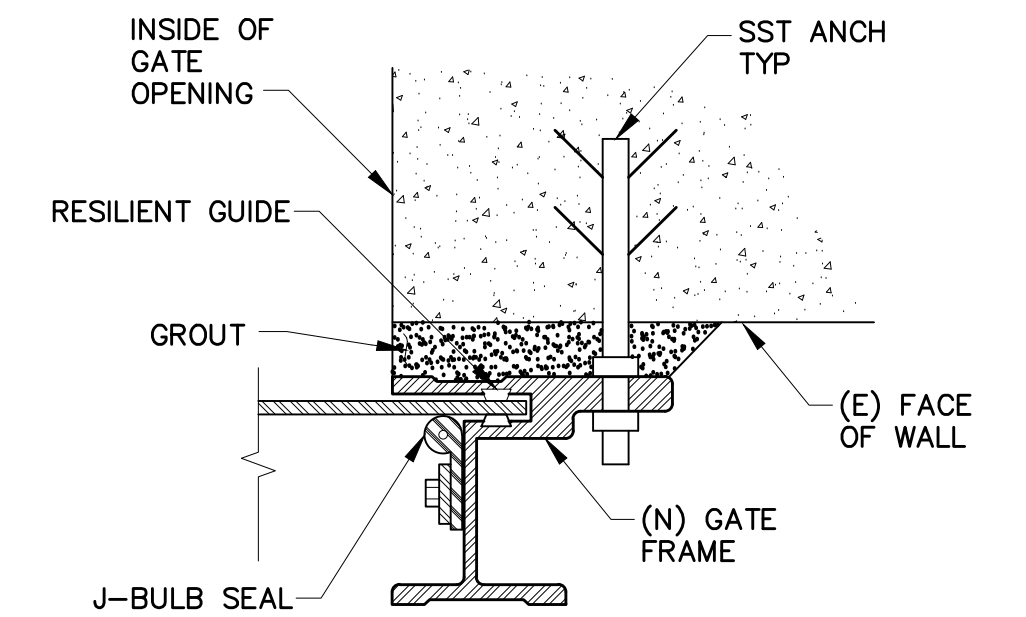
GRATING SUPPORT DETAIL 2
NTS TYP



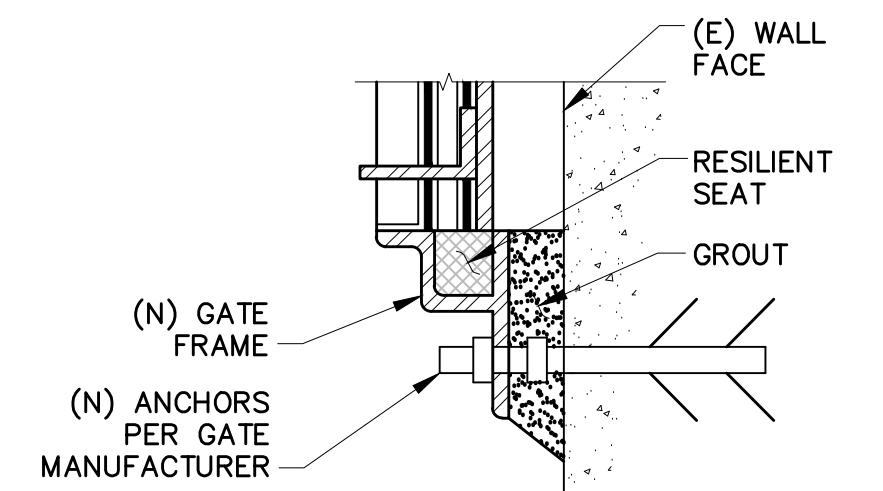
GATE DETAIL 9
NTS TYP



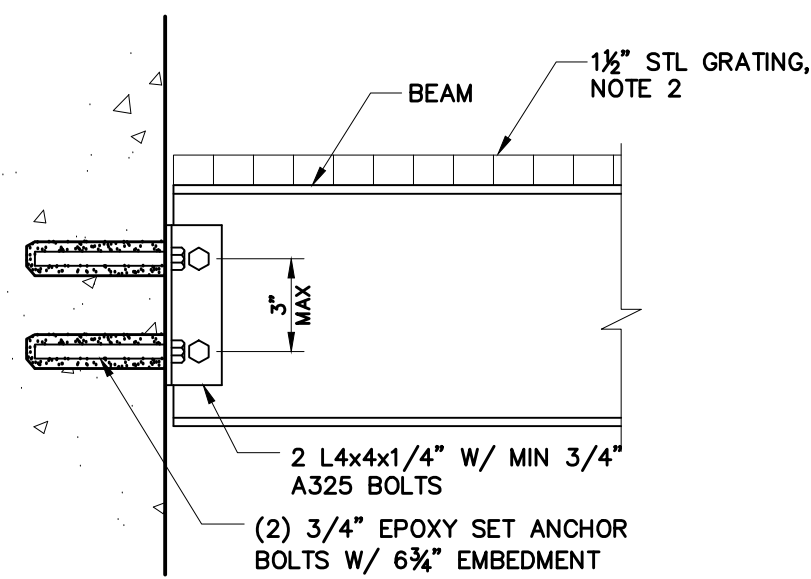
GATE DETAIL 10
NTS TYP



GATE SECTION A
NTS TYP

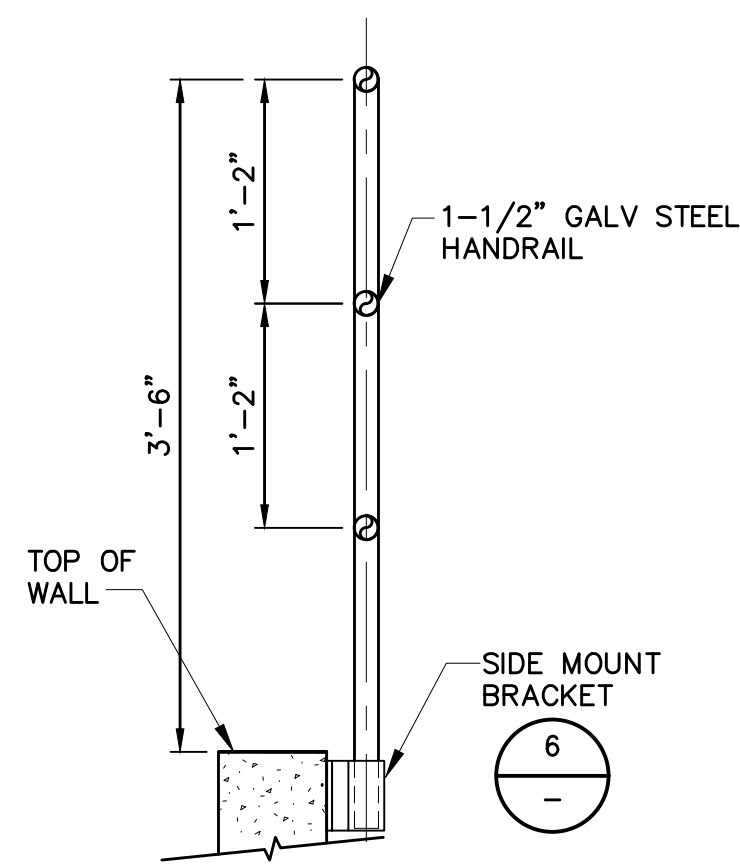


GATE SECTION B
NTS TYP

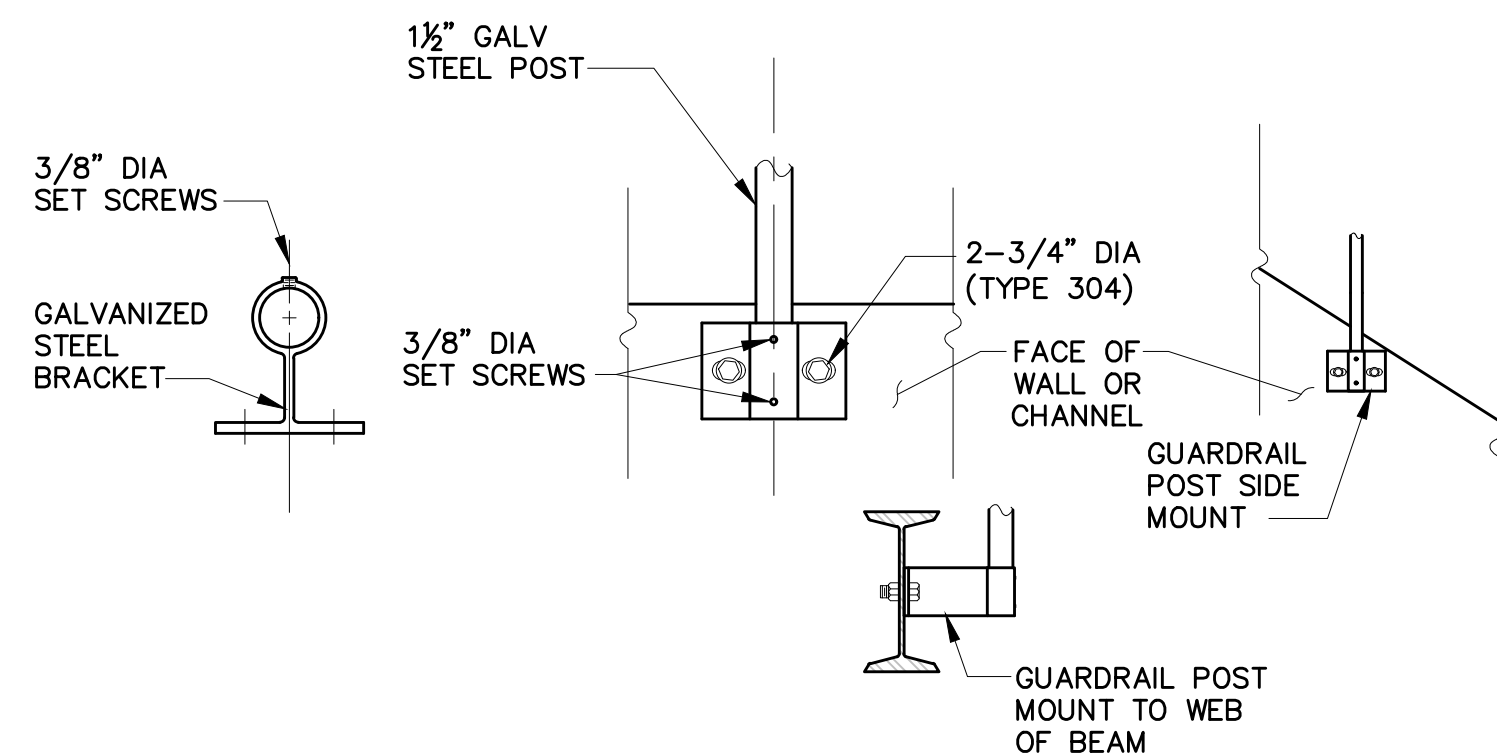


NOTE:
1. HOT DIP GALVANIZE ALL STEEL PARTS AFTER FABRICATION
2. ADJUST ELEVATION AND ORIENTATION OF ANGLE TO ALLOW TOP OF GRATING TO MATCH THE TOP OF THE LOWER WALLS.

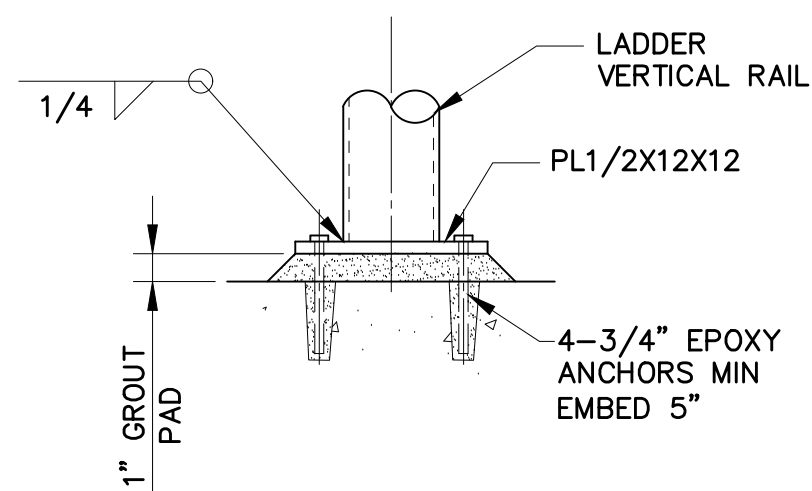
SUPPORT DETAIL 4
NTS TYP



GUARDRAIL DETAIL 5
NTS TYP



GUARDRAIL POST MOUNTING DETAIL 6
NTS TYP



LADDER BASE CONNECTION 7
NTS TYP

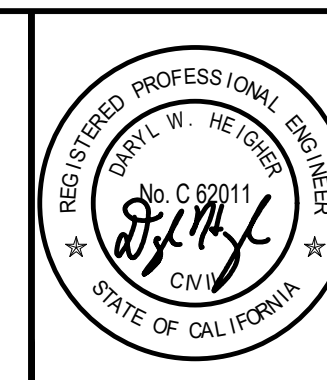
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REVISIONS				
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RANCHO MURIETA COMMUNITY SERVICES
GRANLEES RAW WATER INTAKE IMPROVEMENTS
TYPICAL DETAILS

DRAWING NUMBER C10
SHEET NUMBER 12 OF 12

Priority	Dam	Dam No.	Most Recent Inspection	Dam Type	Spillway Type	Dam Height (ft)	Dam Length (ft)	Max Dam Storage (ac-ft)	Year Built	2024 Age (yr)	Hazard Potential Classification	Condition Assessment	EAP?	Notes	Possible High-Priority Projects from Inspection Report	Possible Lower-Priority Projects from Inspection Report
1	Calero	1450-3	1/25/2024	Earth	Concrete Pipe	55	2400	2382	1982	42	High	Satisfactory	Yes	Has two embankments: the Main Dam and the East Dam Establish an access agreement with adjacent property owner to maintain the outfall channels for Sumps M1 and M2	RMCS D needs to investigate the sudden drop in measured seepage flow at Sump M1 to determine if the system is functioning properly. RMCS D to mark the East Dam outfall with a T-post or something similar for easy identification during inspections.	Shallow low spots with ponded water were present on the crest during this inspection but did not constitute a dam safety issue. The fallen oak tree needs to be removed and RMCS D needs to remove the sporadic woody vegetation and small trees as part of their regular maintenance activities. Continue with rodent abatement efforts and collapse and backfill burrows with compacted material when encountered.
2	Granlees	451	2/13/2024	Concrete Gravity	Overpour	17	364	75	1921	103	Low	Satisfactory	No	Dam in-line with river and interrupted by island in the middle. This dam is technically two dams on either side of island. Schedule inspection for July/August 2024 to observe dam crests while not spilling. Dam to be inspected for seepage at this time. Report states that neither dam has a functioning low-level outlet. Is this something that needs to be added?	Existing concrete spalling on North Dam and longstanding transverse crack near the left abutment of the South Dam. Age of dam and state of concrete may call for full rehabilitation, especially if seepage through dam is present.	Vegetation at the downstream left groin of the South Dam needs to be removed
3	Michigan Bar No. 1	1450-5	1/25/2024	Earth	Concrete Box Culvert	17	1900	814	1989	35	Significant	Satisfactory	Yes	Dam has two reservoirs, called Reservoir No. 1 and Reservoir No. 2	Repair cracked joint on spillway of Reservoir No. 1. Crack does not pose a dam safety risk at this time since dam only approved to impound water to an elevation that is 0.59 ft below spillway crest.	Sporadic oak trees and berry vine growth remain on the dam that need to be removed as part of the regular maintenance activities. Continue with rodent abatement efforts and collapse and backfill burrows with compacted material when encountered.
4	Chesbro	1450-2	1/25/2024	Earth	Concrete Pipe	79	720	1250	1972	52	High	Satisfactory	Yes	The reservoir has three embankments, the North Dam, Middle Dam, and South Dam.	No high-priority projects identified.	Clear the fallen limbs from the oak tree on the downstream left groin of the North Dam. Remove the berry vine growth from the upstream face of the Middle Dam. Continue rodent abatement efforts
5	Clementia	1450-4	2/13/2024	Earth	Concrete Box Culvert	33	1300	850	1976	48	Significant	Satisfactory	Yes		No high-priority projects identified.	Continue removing sporadic woody vegetation from the dam faces and crest as needed. Continue with rodent abatement efforts and collapse and backfill burrows with compacted material when encountered.
6	Michigan Bar No. 2	1450-6	2/13/2024	Earth	Concrete Pipe	36	1400	35	1983	41	Low	Satisfactory	No	The dam has five ponds, but only the sections of embankment impounding Pond No. 3 and No. 5 are jurisdictional. The ponds are equipped with overflow structures that connect each pond. Pond No. 5 has a spillway pipe which discharges into Reservoirs No. 1 and No. 2 at Michigan Bar No. 1 Dam.	No high-priority projects identified.	Continue with rodent abatement efforts and collapse and backfill burrows with compacted material when encountered.

No.	Dam	Dam No.	Most Recent Inspection	Dam Type	WL relative to dam crest at time of inspection (ft)	Spillway Type	WL relative to spillway at time of inspection (ft)	Inspection Recommendations	Inspection Conclusions	Dam Inspection Observations	Spillway Inspection Observations
1	Granlees	451	2/13/2024	Concrete Gravity	-4.5	Overpour	0.5	<p>Schedule the next inspection with RMCS D in July/August 2024 to observe the dam when it is not spilling</p> <p>Vegetation at the downstream left groin of the South Dam needs to be removed</p>	<p>From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use</p>	<p>The North and South concrete gravity dam overpour structures were spilling during this inspection.</p> <p>The visible sections of the crests, upstream faces, and downstream faces showed no signs of instability or distress.</p> <p>Spalling mentioned in previous inspection reports at the overpour section of the North Dam was not observed during the inspection due to the spill.</p> <p>The longstanding transverse crack near the left abutment of the South Dam was obscured by the spill and was not observed during the inspection.</p> <p>The vegetation at the downstream left groin of the South Dam was still present and needs to be removed. No other objectional vegetation was noted during the inspection.</p>	<p>The spillway approaches, crests, and downstream channels were clear and unobstructed.</p>
2	Chesbro	1450-2	1/25/2024	Earth	-8.1	Concrete Pipe	-3	<p>The maintenance items listed in the last inspection report had been satisfactorily completed.</p> <p>The following items were identified during this inspection and need to be completed as part of the regular maintenance activities:</p> <p>Clear the fallen limbs from the oak tree on the downstream left groin of the North Dam.</p> <p>Remove the berry vine growth from the upstream face of the Middle Dam.</p>	<p>From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.</p>	<p>The reservoir has three embankments, the North Dam, Middle Dam, and South Dam. I walked the crests, downstream groins, and toes of each dam. The visible portions of the upstream and downstream faces were uniform and showed no signs of instability or distress.</p> <p>Vegetation control on the dams was generally satisfactory. As requested, the mature tree located near the toe of the North Dam had been pruned up. The young trees and woody vegetation on the downstream face and toe of the Middle Dam noted during the last inspection had also been removed.</p> <p>During this inspection, it was noted that large limbs had fallen from the oak tree located in the left downstream groin of the North Dam that need to be removed. Berry vine growth was observed on the upstream face of the Middle Dam that needs to be removed.</p> <p>No major rodent activity was observed, but RMCS D needs to continue with their abatement efforts and collapse and backfill burrows with compacted material when encountered.</p>	<p>The spillway approach, control section, and concrete pipe were clear and unobstructed. As requested, the bush in the approach channel had been removed.</p> <p>There were no stoplogs in the spillway structure in accordance with the Certificate of Approval which requires the stoplogs be removed between October 1 and April 15 of each year, both dates inclusive.</p>
3	Calero	1450-3	1/25/2024	Earth	-11	Concrete Pipe	-6	<p>As requested, RMCS D had removed the shrub on the upstream faces of the East Dam, removed the vegetation and grass growth in the spillway approach, and removed the accessible vegetation from the outfall channel at Sump M1. The status of the outfall channels for Sumps M1 and M2 were discussed during this inspection. Both sumps drain onto an adjacent property downstream of the Main Dam. A portion of the Sump M1 channel is accessible, but the outfall pipe for Sump M2 is located on the adjacent property. RMCS D is currently working on contacting the adjacent property owner to establish an access agreement to maintain the outfall channels for Sumps M1 and M2.</p> <p>The following maintenance items were identified during this inspection: The downed oak tree on the downstream face of the Main Dam needs to be removed. Sporadic woody vegetation and small tree growth needs to be removed from the Main Dam.</p> <p>RMCS D needs to investigate the sudden drop in measured seepage flow at Sump M1 to determine if the system is functioning properly.</p>	<p>From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.</p>	<p>I walked the crests, downstream groins, and toes of the Main and East Dams. The visible portions of the upstream and downstream faces were uniform and showed no signs of instability or distress. The status of the crest road and previously reported potholes were discussed during this inspection. RMCS D reportedly placed gravel along the crest road since the last inspection and does so on an as needed basis. Shallow low spots with ponded water were present on the crest during this inspection but did not constitute a dam safety issue.</p> <p>Vegetation control was satisfactory apart from sporadic small woody vegetation growth on the Main Dam and the fallen oak tree at the toe of the Main Dam that was covering a portion of the downstream face. The fallen oak tree needs to be removed and RMCS D needs to remove the sporadic woody vegetation and small trees as part of their regular maintenance activities.</p> <p>No major rodent activity was observed, but RMCS D needs to continue with their abatement efforts and collapse and backfill burrows with compacted material when encountered.</p>	<p>The spillway control section, and concrete pipe were clear and unobstructed. The concrete surfaces were in satisfactory condition. As requested, RMCS D had removed the vegetation and grass growth in the spillway approach.</p> <p>There were no stoplogs in the spillway structure in accordance with the Certificate of Approval which requires the stoplogs be removed between October 1 and April 15 of each year, both dates inclusive.</p>
4	Clementia	1450-4	2/13/2024	Earth	-7.9	Concrete Box Culvert	0.1	<p>As requested, RMCS D had cleared the berry vines at the downstream spillway and outlet channel.</p> <p>The dam is well maintained, but RMCS D needs to continue removing sporadic woody vegetation from the dam faces and crest as needed.</p>	<p>From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.</p>	<p>The crest, upstream face, and downstream face were in satisfactory condition with no signs of instability or distress.</p> <p>Vegetation control on the dam was satisfactory apart from sporadic woody vegetation growth that RMCS D needs to remove as part of their regular maintenance activities.</p> <p>No major rodent activity was observed, but RMCS D needs to continue with their abatement efforts and collapse and backfill burrows with compacted material when encountered.</p>	<p>The spillway, control section, box culvert, and downstream channel were clear and unobstructed.</p> <p>The concrete structure remains in satisfactory condition. Stoplogs were not in place, in accordance with the Certificate of Approval which requires the boards be removed between October 1 and April 15 each year, both dates inclusive.</p> <p>As requested, RMCS D had cleared the berry vines at the downstream spillway and outlet channel.</p>
5	Michigan Bar No. 1	1450-5	1/25/2024	Earth	-20	Concrete Box Culvert	-17.6	<p>The owner had removed some of the woody vegetation identified during the last inspection and the spillway approach was clear, but sporadic oak trees and berry vine growth remain on the dam that need to be removed as part of the regular maintenance activities.</p>	<p>From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.</p>	<p>The dam has two reservoirs, Reservoir No. 1 and Reservoir No. 2. I walked the crests of the two reservoirs. The crests were in satisfactory condition. The visible portion of the upstream faces and the downstream faces were in satisfactory condition with no signs of instability or distress.</p> <p>Intermittent oak tree and berry vine growth were present on the dam. RMCS D had removed some of the woody vegetation growth identified during the last inspection and I instructed them to continue removing the objectional vegetation as part of their regular maintenance activities.</p> <p>No major rodent activity was observed, but RMCS D needs to continue with their abatement efforts and collapse and backfill burrows with compacted material when encountered.</p>	<p>Reservoir No. 1 has a box culvert emergency spillway. The spillway approach section and downstream channel were clear and unobstructed. Seasonal grass was present in front of the box culvert intake but did not constitute an impediment to flows. The cracking on the 2020 repair to the right side of the box culvert intake appeared unchanged from the past inspection. The cracked joint does not pose a dam safety concern at this time. The Certificate of Approval allows water to be impounded to Elevation 163.00 in Reservoir No. 1, which is 0.59-feet below the invert of the emergency spillway crest.</p>
6	Michigan Bar No. 2	1450-6	2/13/2024	Earth	-2.5	Concrete Pipe	0	<p>The dam is well maintained.</p> <p>The outlet slide gates for Pond No. 3 and Pond No. 5 are due to be cycled in the presence of DSOD during the next inspection.</p>	<p>From the known information and visual inspection, the dam, reservoir, and the appurtenances are judged safe for continued use.</p>	<p>The dam has five ponds, but only the sections of embankment impounding Pond No. 3 and No. 5 are jurisdictional.</p> <p>The visible upstream faces, crests, and downstream faces and groins were in satisfactory condition, showing no signs of instability or distress. Vegetation control was satisfactory. No major rodent activity was observed, but RMCS D needs to continue with their abatement efforts and collapse and backfill burrows with compacted material when encountered.</p>	<p>The ponds are equipped with overflow structures that connect each pond. Pond No. 5 has a spillway pipe which discharges into Reservoirs No. 1 and No. 2 at Michigan Bar No. 1 Dam.</p> <p>The spillway pipe and each overflow structure were clear and unobstructed.</p>

Outlet Inspection Observations	Seepage Inspection Observations	Overall Instrumentation Inspection Observations	Piezometer Instrumentation Inspection Observations	Seepage Instrumentation Inspection Observations
<p>Neither dam has a functioning low-level outlet. The low-level outlet system consists of a sluice gate at the pumping plant intake at the North Dam and the fish ladder at the South Dam.</p> <p>The California Water Code section 6102.5(c) requires that the controls be fully cycled by the owner annually, and in the presence of DSOD every three years. The sluice gate was fully exercised during this inspection without issue. It is due to be cycled in the presence of DSOD again during the 2026-2027 inspection cycle.</p>	<p>The seepage conditions at the dam could not be assessed due to the ongoing spill.</p>	<p>There is no instrumentation for this dam, and none is deemed necessary.</p>	<p>N/A</p>	<p>N/A</p>
<p>The low-level outlet is controlled by an upstream slide gate and a downstream butterfly valve.</p> <p>The California Water Code section 6102.5(c) requires that the upstream and downstream controls be fully cycled by the owner annually, and in the presence of DSOD every three years. Both controls were fully exercised during this inspection without issue. They are due to be cycled in the presence of DSOD again during the 2026-2027 inspection cycle.</p>	<p>The dam embankments were damp due to recent precipitation, but no other signs of seepage (i.e. live flow, overly saturated ground, abnormally green vegetation) were observed on the downstream faces, groins or toes of the dams.</p> <p>Each dam was constructed with a chimney and blanket drain system. At the North Dam, this collected seepage daylighted at a manhole drain at the toe. Standing water was present at the outfall but there was no live flow.</p> <p>Seepage at the Middle Dam is collected in a sump and the sump pump is metered. Sump readings are recorded monthly and submitted with the annual instrumentation submittals.</p> <p>Seepage at the South Dam is collected at three manhole drains along the toe. Each manhole drain was observed to be dry. These seepage observations are consistent with past inspections at similar reservoir levels.</p>	<p>Instrumentation at the dam consists of one seepage sump pump and six survey monuments.</p> <p>Four manhole drains located at the North Dam and South Dam are monitored visually for flow but are not measured. The latest instrumentation submittal was received under cover letter dated March 23, 2023, and covers data through the 2022 calendar year.</p> <p>Conclusion: The instrumentation data indicate the dam is performing satisfactorily, and no additional instrumentation is deemed necessary at this time.</p>	<p>N/A</p>	<p>There is one sump pump located at the toe of the Middle Dam. Sump readings are recorded monthly. Data is provided from 2004 through 2022. Seepage measured at the sump generally follows changes in the reservoir level, with a historical max at the Middle Dam sump around 575,000 gallons per month (~13.3 GPM). This behavior continued in 2022 and the Middle Dam sump remained within its historical range, with an annual max around 175,000 gallons per month (~4.1 GPM).</p>
<p>The low-level outlet is controlled by an upstream slide gate and a downstream sluice gate. The California Water Code section 6102.5(c) requires that the upstream and downstream controls be fully cycled by the owner annually, and in the presence of DSOD every three years. Both controls were fully exercised during this inspection without issue. They are due to be cycled in the presence of DSOD again during the 2026-2027 inspection cycle.</p>	<p>The dam embankments were damp due to recent precipitation, but no other signs of seepage (i.e. live flow, overly saturated ground, abnormally green vegetation) were observed on the downstream faces, groins or toes of the dams.</p> <p>The Main Dam is equipped with two sumps (Sumps M1 and M2) and the East Dam is equipped with one (East Dam). All were tested during this inspection and were in good working condition. Sump readings are recorded monthly and submitted with the annual instrumentation submittals. The status of the outfall channels for Sumps M1 and M2 were discussed during this inspection. Both sumps drain onto an adjacent property downstream of the Main Dam. A portion of the Sump M1 channel is accessible, but the outfall pipe for Sump M2 is located on the adjacent property. RMCS D is currently working on contacting the adjacent property owner to establish an access agreement to maintain the outfall channels for Sumps M1 and M2. The outfall for the East Dam is located in the upstream right groin of the East Dam and was observed to be clear and unobstructed. I suggested that RMCS D mark the East Dam outfall with a T-post or something similar for easy identification during inspections.</p>	<p>Instrumentation at the dam consists of two piezometers, three seepage sump pumps, and eleven survey monuments.</p> <p>The latest instrumentation submittal was received under cover letter dated March 23, 2023, and covers data through the 2022 calendar year.</p> <p>Conclusion: The instrumentation data indicate the dam is performing satisfactorily, and no additional instrumentation is deemed necessary at this time. RMCS D needs to investigate the sudden drop in measured seepage flow at Sump M1 to determine if the system is functioning properly.</p>	<p>There are two open standpipe piezometers (P-3 and P-4) aligned near the maximum section of the Main Dam. P-3 is located in the crest, upstream of the chimney drain. P-4 is located in the downstream bench, downstream of the chimney drain and above the blanket drain. Since installation in 2008, P-3 has shown minor fluctuations corresponding to changes in reservoir level, and generally fluctuates between 15 to 20 feet above its tip elevation. This is reasonable given its location upstream of the chimney drain. Since installation in 2008, P-4 has shown little to no fluctuation, remaining within a few feet of its tip elevation. This is reasonable given its location downstream of the chimney drain and above the blanket drain and suggests the two drains are functioning as intended.</p>	<p>There are two sump pumps at the Main Dam (Sumps M1 and M2) and one sump pump at the East Dam (East Dam) that collect seepage. Sump pump data at each sump is collected monthly and plotted as cumulative flow for the month. Data for each sump is provided from 2004 through 2022. Sump M1 generally records the most flow of the three sumps with response to changes in reservoir level with a historical max around 400,000 gallons per month (~9.3 GPM). Sump M1 showed an appreciable drop in measured flow in 2022. Sump M1 has exhibited similar behavior prior to 2006, but the owner should investigate the drop in flow to ensure the flow meter is functioning correctly. Sump M2 shows fluctuations that correspond to changes in reservoir level, with a historical max around 80,000 gallons per month (~1.9 GPM). This behavior continued in 2022 and Sump M2 remained within its historical range, with an annual max around 75,000 gallons per month (~1.7 GPM). East Dam also shows fluctuations that correspond to changes in reservoir level, with a historical max around 50,000 gallons per month (~1.2 GPM). This behavior continued in 2022 and East Dam remained within its historical range, with an annual max around 25,000 gallons per month (~0.6 GPM).</p>
<p>The low-level outlet is controlled by an upstream slide gate and downstream gate valve. The California Water Code section 6102.5(c) requires that the upstream and downstream controls be fully cycled by the owner annually, and in the presence of DSOD every three years.</p> <p>Both controls were fully exercised during this inspection without issue. They are due to be cycled in the presence of DSOD again during the 2026-2027 inspection cycle.</p>	<p>The dam embankment was damp due to morning dew, but no other signs of seepage (i.e. live flow, overly saturated ground, abnormally green vegetation) were observed on the downstream faces, groins, or toe of the dam.</p> <p>Seepage is collected in a sump at the toe of the dam and the sump pump is metered. Sump readings are recorded monthly and submitted with the annual instrumentation submittals. The outfall for the sump pump and the surrounding area were observed to be clear.</p>	<p>Instrumentation at the dam consists of two piezometers, a seepage sump pump, and five survey monuments.</p> <p>Conclusion: The instrumentation data indicate the dam is performing satisfactorily, and no additional instrumentation is deemed necessary at this time.</p>	<p>There are two open standpipe piezometers (P-1 and P-2) aligned near the maximum section of the dam. P-1 is located in the crest, upstream of the chimney drain. P-2 is located in the downstream shell, downstream of the chimney drain and above the blanket drain.</p> <p>Since installation in 2008, P-1 has shown minor fluctuations corresponding to changes in reservoir level, but generally fluctuates between 8 to 10 feet above its tip elevation. This is reasonable given its location upstream of the chimney drain.</p> <p>Since installation in 2008, P-2 has generally read dry. This is reasonable given its location downstream of the chimney drain and above the blanket drain and suggests the two drains are functioning as intended.</p>	<p>There is one sump pump located at the toe of the dam. Sump readings are recorded monthly. Data is provided from 2004 through 2022. Seepage measured at the sump generally follows changes in the reservoir level, with a historical max prior to 2017 around 50,000 gallons per month (~1.2 GPM).</p> <p>A new meter and pumping system were installed in late 2016/early 2017. Since this installation, the seasonal maximum has been as high as 500,000 gallons per month (~11.5 GPM). This behavior continued in 2022 and the sump remained within its historical range, with an annual max around 150,000 gallons per month (~3.5 GPM).</p>
<p>The dam does not have a traditional low-level outlet. The reservoir can be dewatered via pumps located at the southwest end of Reservoir No. 1. The pumps were in satisfactory condition and RMCS D regularly uses them for irrigation purposes.</p>	<p>The dam embankment was damp due to recent precipitation, but no other signs of seepage (i.e. live flow, overly saturated ground, abnormally green vegetation) were observed on the downstream faces, toes, or toe ditch of the dams.</p>	<p>There is no instrumentation for this dam, and none is deemed necessary at this time.</p>	<p>N/A</p>	<p>N/A</p>
<p>The low-level outlet system is comprised of drain lines for both Ponds No. 3 and No. 5. The drains discharge into a diversion manhole located at the north end of the reservoir between Ponds No. 3 and No. 5. Each drain line is controlled by a slide gate located in the manhole. Releases then discharge through a single drain line into Michigan Bar No. 1 Dam.</p> <p>The slide gate which controls the drain line into Michigan Bar No. 1 Dam is left in the fully open position and the operating stem has been removed.</p> <p>The California Water Code section 6102.5(c) requires that the outlet controls be fully cycled by the owner annually, and in the presence of DSOD every three years. The controls for Ponds No. 3 and No. 5 were fully cycled in the presence of DSOD on February 10, 2022. They are due to be cycled in the presence of DSOD again during the next inspection.</p>	<p>The dam embankment was damp due to morning dew, but no other signs of seepage (i.e. live flow, overly saturated ground, abnormally green vegetation) were observed on the downstream faces, groins, or toe of the dam.</p>	<p>There is no instrumentation for this dam, and none is deemed necessary at this time.</p>	<p>N/A</p>	<p>N/A</p>

Survey Instrumentation Inspection Observations
N/A
<p>There are six survey monuments, three on the crest of the North and three on the crest of the Middle Dam. The monuments are surveyed every five years for vertical and horizontal displacements. The latest survey was conducted in April 2020. The data from the latest survey was reviewed in the inspection report dated April 15, 2022, with no unusual trends noted. The next survey is due to be performed in 2025.</p>
<p>There are eleven survey monuments located along the crests of the Main and East Dams. The monuments are surveyed every five years for vertical and horizontal displacements. The latest survey was conducted in April 2020. The data from the latest survey was reviewed in the inspection report dated April 15, 2022, with no unusual trends noted. The next survey is due to be performed in 2025.</p>
<p>There are five survey monuments at the dam. The monuments are surveyed every five years for vertical and horizontal displacements. The latest survey was conducted in April 2020. The data from the latest survey was reviewed in the inspection report dated April 15, 2022, with no unusual trends noted. The next survey is due to be performed in 2025.</p>
N/A
N/A

Dam Name	CA ID	Federal ID	Owner Names	Owner Types	Primary Owner Type	Non-Federal Dam on Federal Property	Primary Purpose	Purposes	Source Agency	State or Federal Agency ID	Latitude
Granlees	451	CA00599	Consumnes Irrigation Association and Rancho Murieta Community Services District	Private	Public Utility	No	Other	Other;Irrigation;Water Supply	California	1450.007	38.4976
Chesbro	1450-2	CA00995	Rancho Murieta Community Services District	Public Utility	Public Utility	No	Water Supply	Water Supply	California	1450.002	38.509
Calero	1450-3	CA01209	Rancho Murieta Community Services District	Public Utility	Public Utility	No	Water Supply	Water Supply;Irrigation;Recreation	California	1450.003	38.5246
Clementia	1450-4	CA01119	Rancho Murieta Community Services District	Public Utility	Public Utility	No	Water Supply	Water Supply;Recreation	California	1450.004	38.5017
Michigan Bar No. 1	1450-5	CA01243	Rancho Murieta Community Services District	Public Utility	Public Utility	No	Water Supply	Water Supply;Other;Irrigation	California	1450.005	38.4825
Michigan Bar No. 2	1450-6	CA01288	Rancho Murieta Community Services District	Public Utility	Public Utility	No	Water Supply	Water Supply;Other;Irrigation	California	1450.006	38.4821

Longitude	State	County	City	Distance to Nearest City (Miles)	River or Stream Name	Congressional District	State Regulated Dam	State Jurisdictional Dam	State Regulatory Agency	State Permitting Authority	State Inspection Authority	State Enforcement Authority
-121.066	California	Sacramento			Cosumnes River	Congressional District 07, California	Yes	Yes	DWR, Division of Safety of Dams	Yes	Yes	Yes
-121.0726	California	Sacramento	Rancho Murieta	0	Tr Cosumnes Rv	Congressional District 07, California	Yes	Yes	DWR, Division of Safety of Dams	Yes	Yes	Yes
-121.0827	California	Sacramento	Rancho Omochumnes	3	Crevis Creek	Congressional District 07, California	Yes	Yes	DWR, Division of Safety of Dams	Yes	Yes	Yes
-121.0702	California	Sacramento	Rancho Murieta	0	Tr Cosumnes Rv	Congressional District 07, California	Yes	Yes	DWR, Division of Safety of Dams	Yes	Yes	Yes
-121.0827	California	Sacramento	Wilton	5	Tr Cosumnes Rv	Congressional District 07, California	Yes	Yes	DWR, Division of Safety of Dams	Yes	Yes	Yes
-121.0824	California	Sacramento			Tr Cosumnes Rv	Congressional District 07, California	Yes	Yes	DWR, Division of Safety of Dams	Yes	Yes	Yes

Federally Regulated Dam	Built Under the Authority of the Secretary of Agriculture	NRCS Watershed Dam Authorization	Primary Dam Type	Dam Types	Dam Height (Ft)	Structural Height (Ft)	NID Height (Ft)	NID Height Category	Dam Length (Ft)	Volume (Cubic Yards)	Year Completed	Year Completed Category	NID Storage (Acre-Ft)
No	No	N/A	Gravity	Gravity	17	12	17	Less than 25 feet	364	1200	1921	1920-1929	75
No	No	N/A	Earth	Earth	79	75.9	79	51-100 feet	720	425000	1972	1970-1979	1250
No	No	N/A	Earth	Earth	55	52	55	51-100 feet	2400	990000	1982	1980-1989	2832
No	No	N/A	Earth	Earth	33	27	33	25-50 feet	1300	230000	1976	1970-1979	850
No	No	N/A	Earth	Earth	17	14.6	17	Less than 25 feet	1900	464000	1989	1980-1989	814
No	No	N/A	Earth	Earth	36	33.5	36	25-50 feet	1400	184800	1983	1980-1989	35

Max Storage (Acre-Ft)	Surface Area (Acres)	Drainage Area (Sq Miles)	Data Last Updated	Last Inspection Date	Inspection Frequency	Hazard Potential Classification	Condition Assessment	Condition Assessment Date	EAP Prepared	EAP Last Revision Date	Website URL	Operational Status	Operational Status Date
75	30	535	12/23/2022	2/10/2022	0.5	Low	Satisfactory	9/1/2017	Not Required		https://damsafety.org/california	Normal Operations	2/22/2023
1250	46	0.14	2/22/2024	2/10/2022	1	High	Satisfactory	9/1/2017	Yes	10/5/2022	https://damsafety.org/california	Normal Operations	2/22/2023
2832	110	0.33	2/22/2024	2/10/2022	1	High	Satisfactory	9/1/2017	Yes	10/5/2022	https://damsafety.org/california	Normal Operations	2/22/2023
850	70	2.35	12/23/2022	2/10/2022	1	Significant	Satisfactory	9/1/2017	Yes	10/5/2022	https://damsafety.org/california	Normal Operations	2/22/2023
814	34		2/22/2024	2/10/2022	1	Significant	Satisfactory	9/1/2017	Yes	10/5/2022	https://damsafety.org/california	Normal Operations	2/22/2023
35	2.29		12/23/2022	2/10/2022	0.5	Low	Satisfactory	9/1/2017	Not Required		https://damsafety.org/california	Normal Operations	2/22/2023

Inundation Maps Added to NID?
No
Yes
Yes
No
Yes
No