

M53 Reconstruction 15 Mile to 18 Mile Sterling Heights, MI

Joint Project Locate Presentation

Owner: Michigan Department of Transportation

Contractor: Dan's Excavating, Inc.

Scope of Project

- The project consisted of full reconstruction of M-53 (Van Dyke Road) from just south of 15 Mile to just north of 18 Mile in Sterling Heights and the mill and fill of roadway from just north Red Run Drain to the start of the reconstruction area.
- Project Stats:
 - Average Daily Traffic Counts of Aprox. 40,000 VPD
 - 2 Major Fiat/Chrysler (FCA) plants within the reconstruction portion of the project that needed to stay open and access provided throughout.
 - Remove and replace all storm sewers in corridor
 - Aprox. 22,500 linear feet of new concrete storm sewer including 680 new catch basins or manholes
 - Installation of 50 new traffic signal poles with mast arms. (All LED)
 - Removal of almost 300,000 square yards of pavement. All of which was recycled and placed back on the grade for base course stone.

Scope continued

- Project Stats continue:
 - Excavation of over 170,000 cubic yards of material with 31,000 cubic yards being used as embankment on the project. The balance being repurposed off site.
 - The placement of over 230,000 tons of Open Graded Drainage Course material for base
 - Aprox. 200,000 square yards of concrete pavement (9" non-reinforced) and 40,000 tons of hot mix asphalt.
 - Very aggressive completion schedule
 - +/- 185 businesses and residential driveways to contend with and maintain as we constructed the roadway and the driveways.
 - Continuous utility conflicts both known and unknown to the original designers.

Stages to the construction project

- Stage 1:
 - Excavate the median to construct temporary widenings for traffic shifts
 - Install temporary signals were required for various traffic movements
 - Install majority of trunk line storm sewer and median cross leads
 - Stone and pave Temporary lanes for traffic shifts
- Stage 2:
 - Remove pavement on the existing lanes (outside) of both directions
 - Excavate grade and complete storm sewer installation
 - Place stone and pave all areas needed for new construction
 - Place new traffic signals and sidewalks for permanent construction
 - Complete the restoration and open lanes

Construction Staging (cont.)

- Stage 3

- Remove the temporary roadway in median
- Excavate and grade for new concrete
- Complete storm sewers and adjust all structures
- Concrete pavement and curb and gutter placed
- Complete traffic signals and install permanent signs
- Stripe roadway for final configuration

- Stage 4

- Median construction including
 - Restoration, Sprinklers, tree plantings and DTE reinstallation of median lights
- Final permanent striping and removal of temporary signals

Potential Utility Conflicts

- Consumers Energy:
 - Large transmission lines going down the center lane of the roadway for about a mile (SB) with concerns of depth during the breaking operations in stage 2.
 - We had to revise our breaking techniques over this area.
 - Numerous Existing lines that were within the subgrade or very close to the bottom of the clay grade. This was an issue with subsurface grade work, storm sewer installation and underdrain installation.
- AT&T:
 - Duct banks that were within the grading limits of the new road grade and conflicts with sewer installation.
 - Aging duct banks that were very brittle with construction process.
- DTE:
 - Street lighting down the median was removed prior to the start of the project, no real conflicts with this during construction. They provided services to the traffic signals throughout the project limits.

Potential Conflicts (Cont.)

- Fiberlink/Chrysler
 - Fiat Chrysler had a few fiber optic lines that were vital to their operations at 2 major plants along the project limits.
 - This line was tough to locate as it was jack and bored with various depths being reported. We eventually found this line to be quite deep under the roadway.
- Comcast, Comlink and Verizon
 - They were relocated prior to the project on overhead lines in some areas
 - Comcast also had lines within existing duct banks
- City of Sterling Heights
 - Various water and sewer mains that were in conflict were relocated or taken out of service throughout the project.

How we got the Pilot Project for the Joint Project Locate Started

- It started as a thought from Dan's and MITA that his project was going to be a challenge for the utility companies to perform at the level needed to complete this project with minimal incidents.
- The use of restaking using the 24 hour rule for restaking on this project would have proved a challenge as the staging of the project would have had numerous areas ready for daily 24 hour restaking needs.
- This pilot was an attempt to mitigate the need for continuous restaking on a project where the stages of construction were constantly changing and the needs for restaking would have been virtually every day.
- The idea of a full time staker for the project came about during discussions with MITA, Dan's, MISS-DIGG, and the utility companies.
- This project was a perfect candidate for the use of this idea. a joint project locate

How we got the Pilot Project for the Joint Project Locate Started (Cont)

- There was an initial meeting to bring all parties into the mix in order to come up with an amicable agreement that would be tried on this project. This started the Joint Project Locator Pilot Project discussion.
- The staking costs were not a concern of the contractors and MITA based on the potential downside of the way the system was working at the time of this pilot.

How it worked at the project level

- Once the project was about to start, the project team from Dan's met with the staking companies and set the ground rules for the stakers and what our needs would be
 - We had access to the staker for up to 4 hours per day. This was initiated daily by our on site superintendent.
 - The staker and our superintendent would talk early each morning in an effort to save time for the staker. If we had nothing for them that day, it was relayed and they would fulfil other staking requested local to M53.
 - If we needed them throughout the day, we called and they would return to give full support if we could not locate a utility or the existing interfered with the new construction

How it worked at the project level (Cont)

- We did have periods of time when more than one staker was needed to stay ahead of this accelerated schedule, they did so by adding stakers to the project.
- Consumers Energy had a full time on site staker to deal with the pavement removal and conflicts that were occurring throughout the construction. They worked hand and hand with our field foreman to make sure damage was very limited. It worked as all would have hoped.
- The other major conflict on the project was an ATT duct that was high enough in spots to be in the grade. It was not to be relocated per the plans, but should have been. This very old duct bank sustained minimal damage in a location where it was moving vertically throughout the grade.

Use on other projects

- We believe the use of a joint project locate was a great benefit to the overall project. We realize it would not be feasible to use on every project but if it could, we would not argue the use.
- We think it has its place within the road building environment on certain projects, not based on dollars of the project but on the proximity to existing streets and many utility relocates.
- Example of roads that would be candidates for this process.
 - M-24 - Telegraph Road
 - M-1 - Woodward Avenue
 - M53 – Van Dyke
 - M97 – Gratiot Avenue
 - M85 – Fort Street
- These are all in the metro Detroit area, we are sure there are numerous others that could benefit from this project.

Conclusion: Contractors Perspective

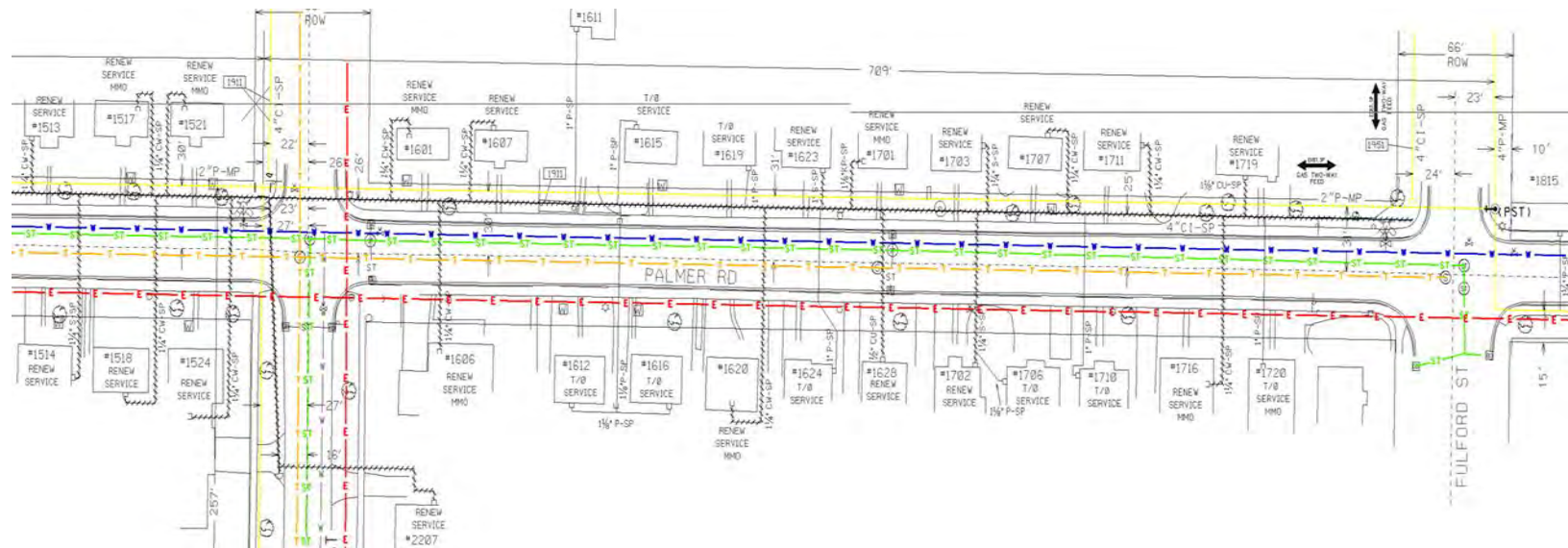
- It was a success. Our field operations and the on site stakers worked hand in hand to complete this job with minimal impacts.
- Minimal damage occurred throughout the project. There was numerous unknown utilities or utilities that did not match our plans for location or grade.
- We would use on every job we have an opportunity to use it on.
- Believe there was a benefit to the Utility companies as far as coordination of staking as well as limited damages.
- We believe being on the front end of the design with this would also be beneficial to the overall project performance so conflicts could be identified prior to construction beginning, this would limit potential delays caused by utility relocations during the construction process.

Staking for Large Projects

MUCC Discussion 01/20/2016

Description

- This process is to help the excavator and locator on large excavation projects work together to prevent damages.



Process Sequence

- 1. Excavator notifies Miss Dig and identifies to the Miss Dig call center rep that this ticket is an “ongoing project”.**
 - **Subcontractors are required to call in separate ticket for their excavations**
- 2. The locator receives the ticket and stakes the whole scope of the ticket by the due date or by a mutually agreed upon timeframe.**
 - **Note: Offset marks may be used to help the excavator maintain knowledge of facilities in the area.**
 - **Note: Excavator makes every attempt to maintain the markings. Utilities are not required to restake entire project in future (except for specific locations due to additional assistance or destroyed marks.)**
 - **Note: If the scope of the project is not clear the locator calls excavator for clarification.**

Process Sequence

- 3. When / If the marks are “destroyed” or there is an “unmarked facility”, the excavator notifies Miss Dig for a retransmit of that ticket.**
 - **Note: The exact location of the “destroyed markings” or the “unmarked facility” is identified/added in the staking instructions space on the retransmitted ticket.**

- 4. Locator receives the retransmitted ticket and locates what is identified/added in the staking instructions space on the retransmitted ticket within the specified timeframe.**

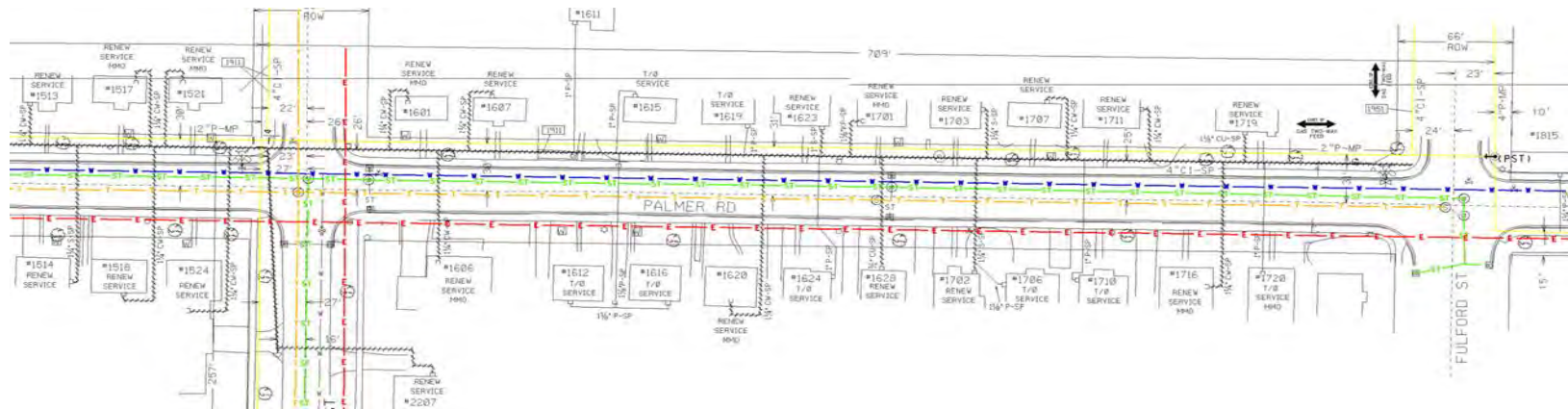
Specified timeframe per PA174:

Unmarked facility = 3 business hours

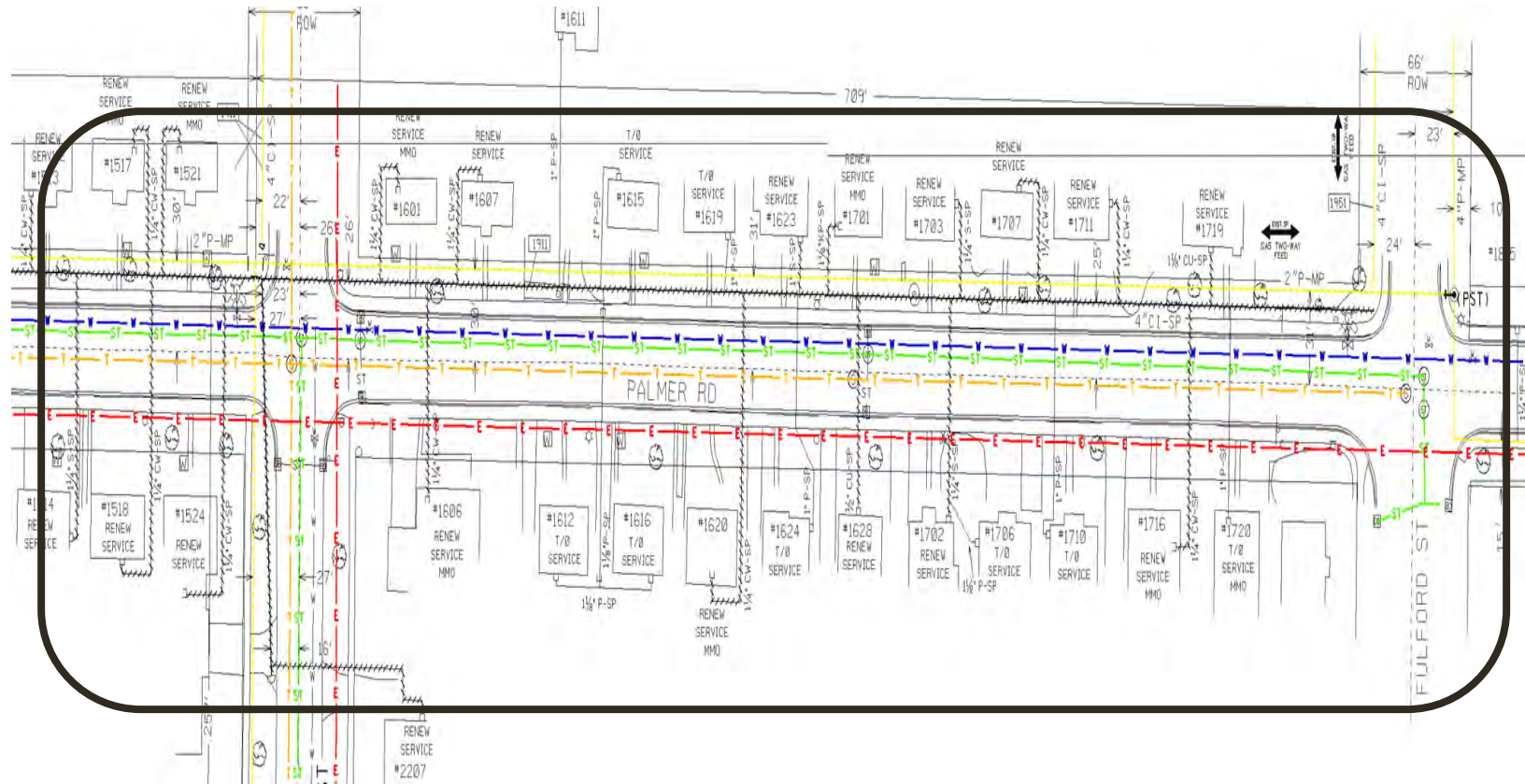
Destroyed Marks = 24 business hours

Process Sequence

5. Upon completion: Locator puts detailed remarks of what was located and when on the retransmitted ticket in his ticket management system and this documentation is available upon request.

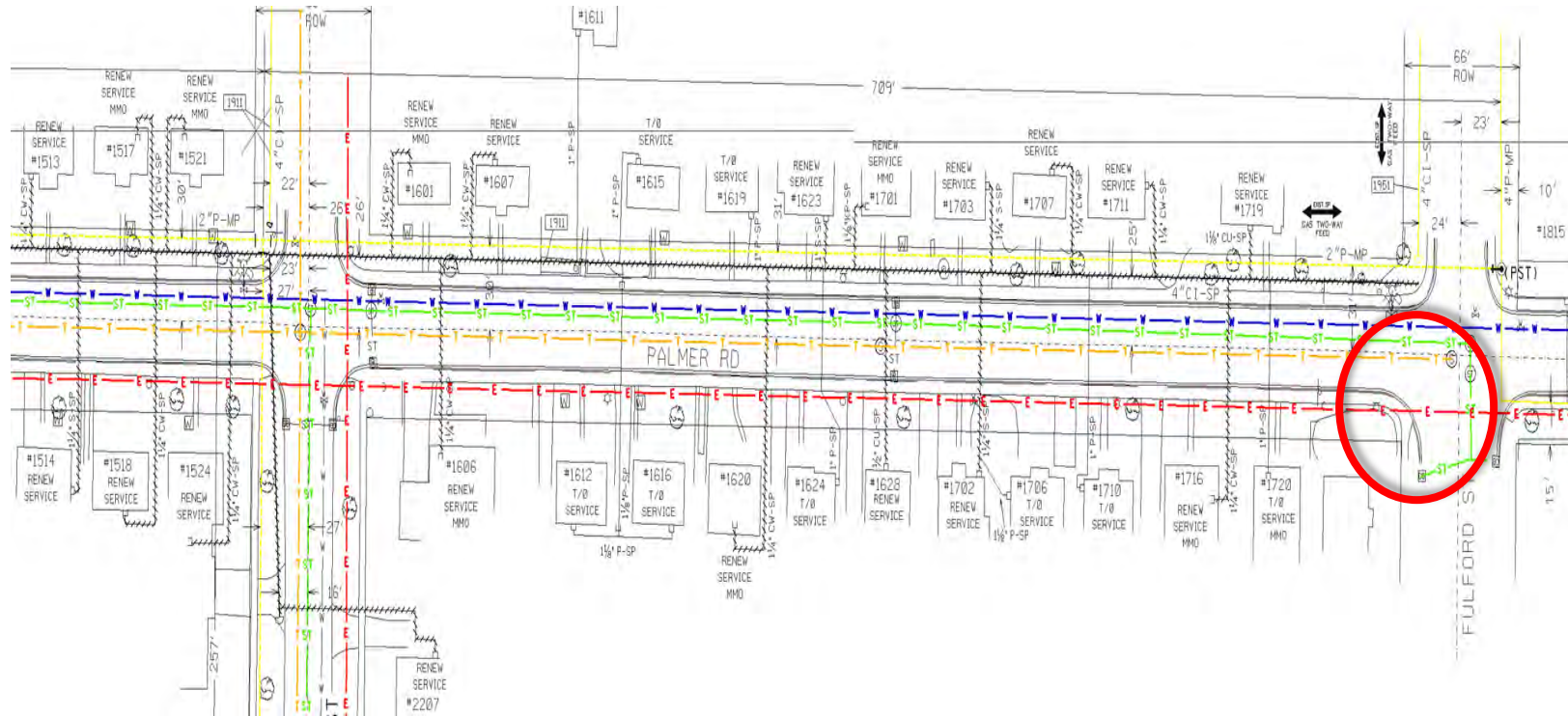


Original Staking Request



- Excavator submits staking request: “Stake both sides of Palmer from 100 feet west of Cameron to 100 east of Fulford for road project”
- Utilities stake all facilities within scope of ticket prior to dig start date
- Excavator hand exposes all utilities where planned excavations are within caution zone of marked utilities

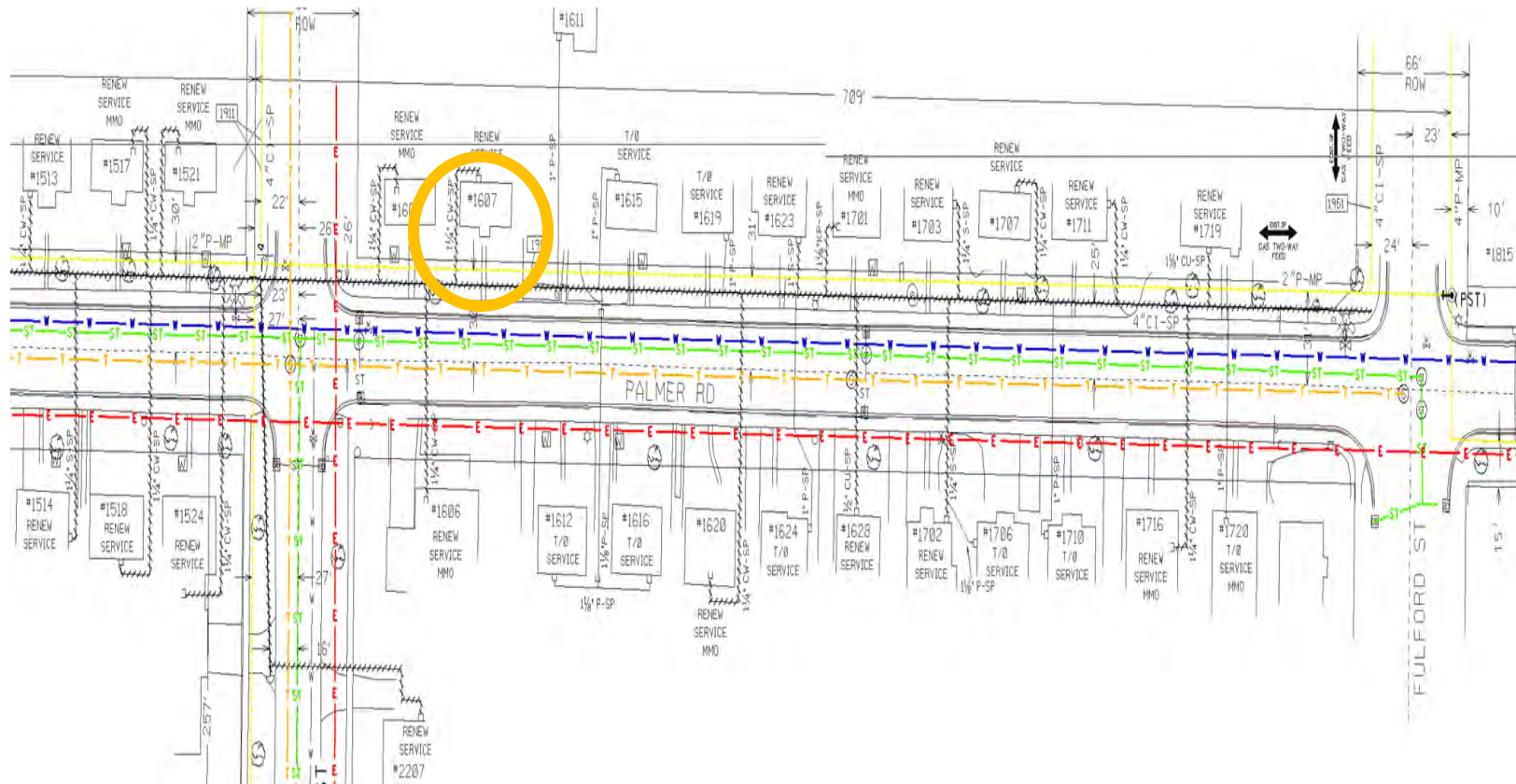
Day One (Dig Start Date) --- Additional Assistance



Excavator cannot find electric at SW corner of Palmer/Fulford.

- Restake request submitted: “Additional assistance needed at SW corner of Fulford/Palmer – electric only”
- Electric staker responds within three hours to provide assistance at SW corner

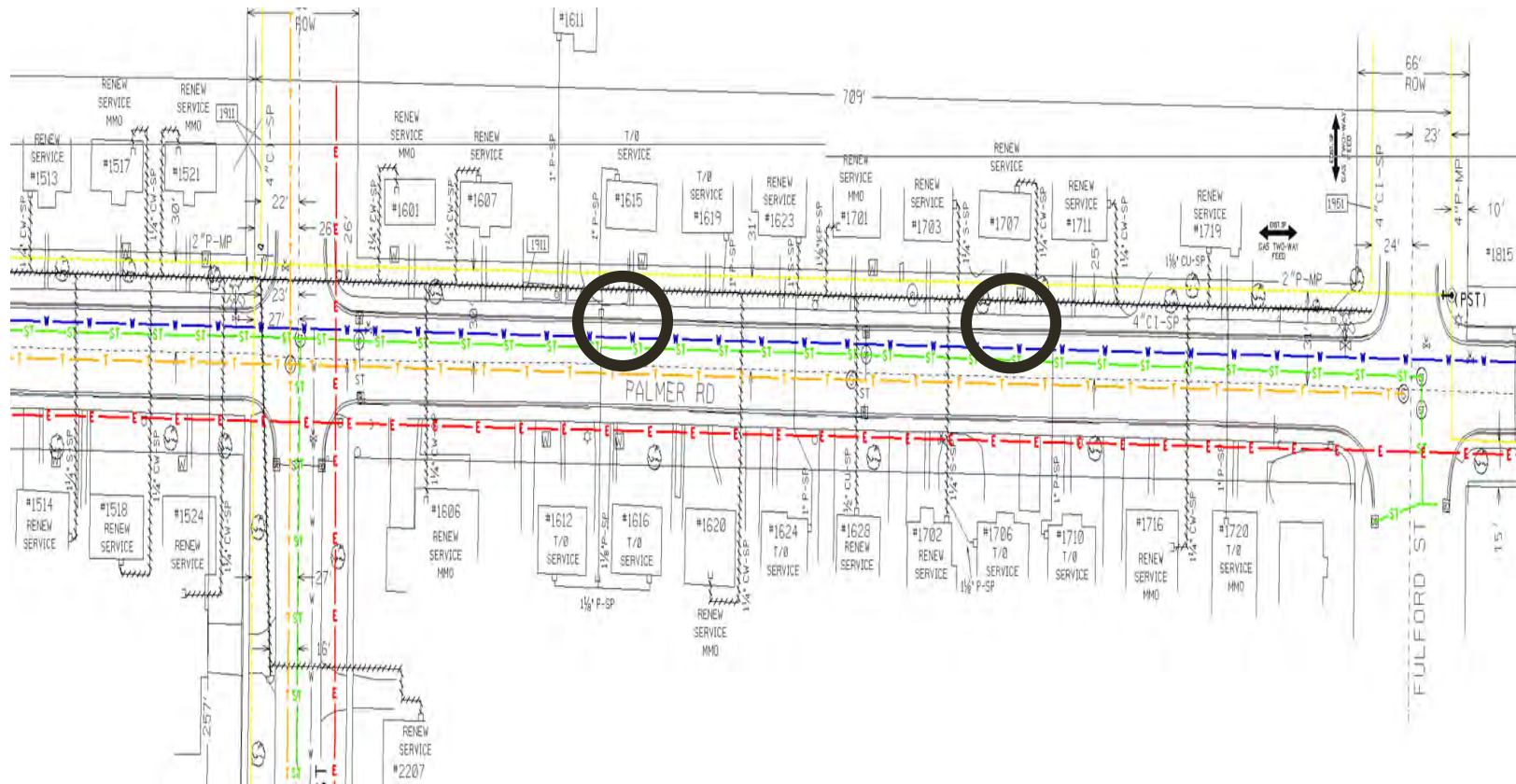
Also Day One – Unmarked Facility



Excavator sees phone pedestal in curb lawn at 1607 Palmer

- Restake request submitted: “Phone only -- pedestal with no marks at 1607 Palmer “
- Phone staker responds within 3 hours to mark facilities

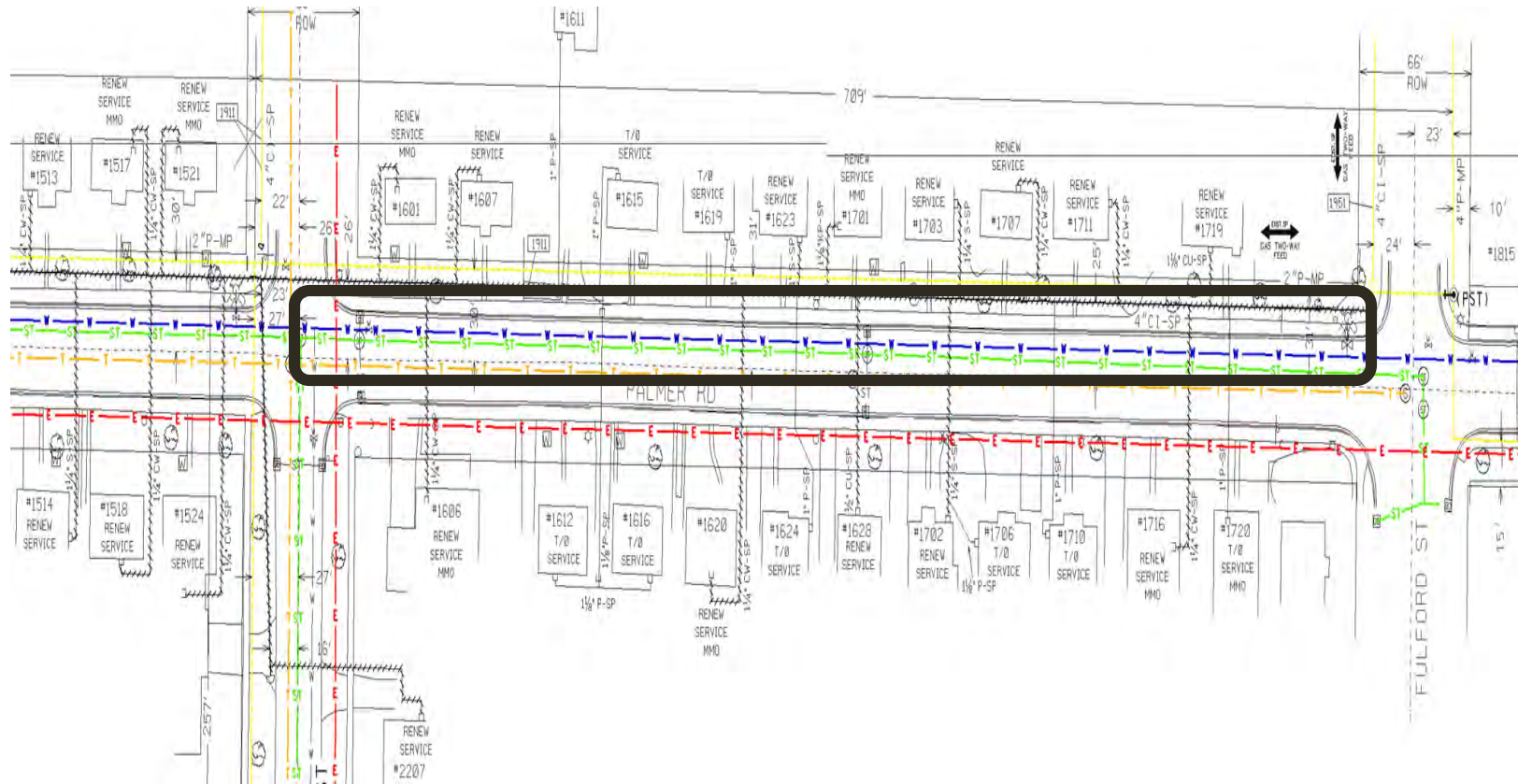
Day Five – Destroyed Marks



Milling machine removed marks on north side of road. Digging for catch basins at 1615 and 1707 Palmer.

- Restake request submitted: “Destroyed marks on north side of Palmer Street. Need restake for installation of catch basin at 1615 and 1707 Palmer.”
- Utilities respond within 24 hours to stake facilities at the two addresses

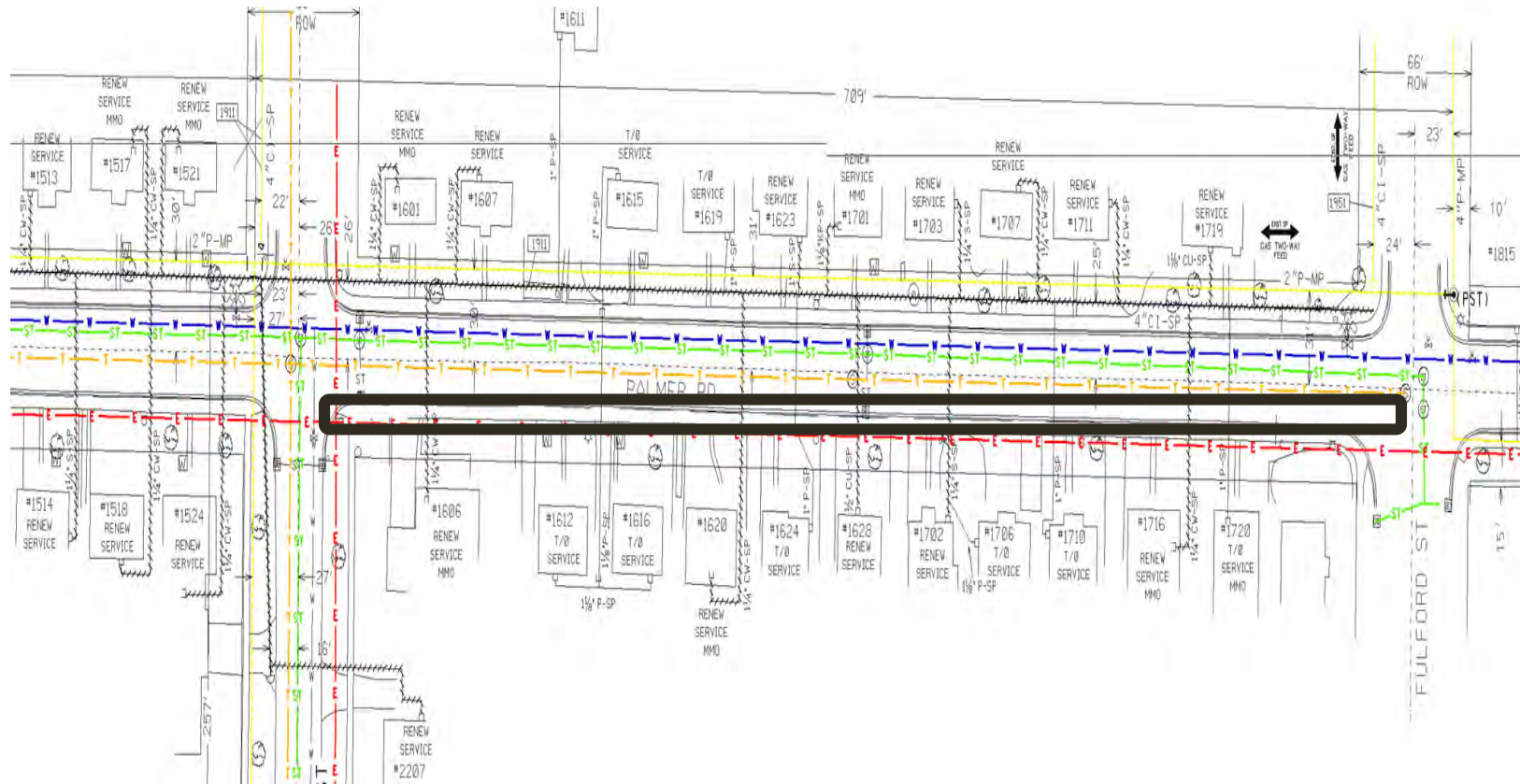
Day Eight – Destroyed Marks



New crew (same excavating company) at site to grade to remove sub base on north side of Palmer– marks had been destroyed by milling machine.

- Restake request submitted: “Restake due to destroyed marks – grading under traffic lanes for north side of Palmer, from Cameron to Fulford”
- Utilities respond within 24 hours to stake all facilities under north traffic lanes

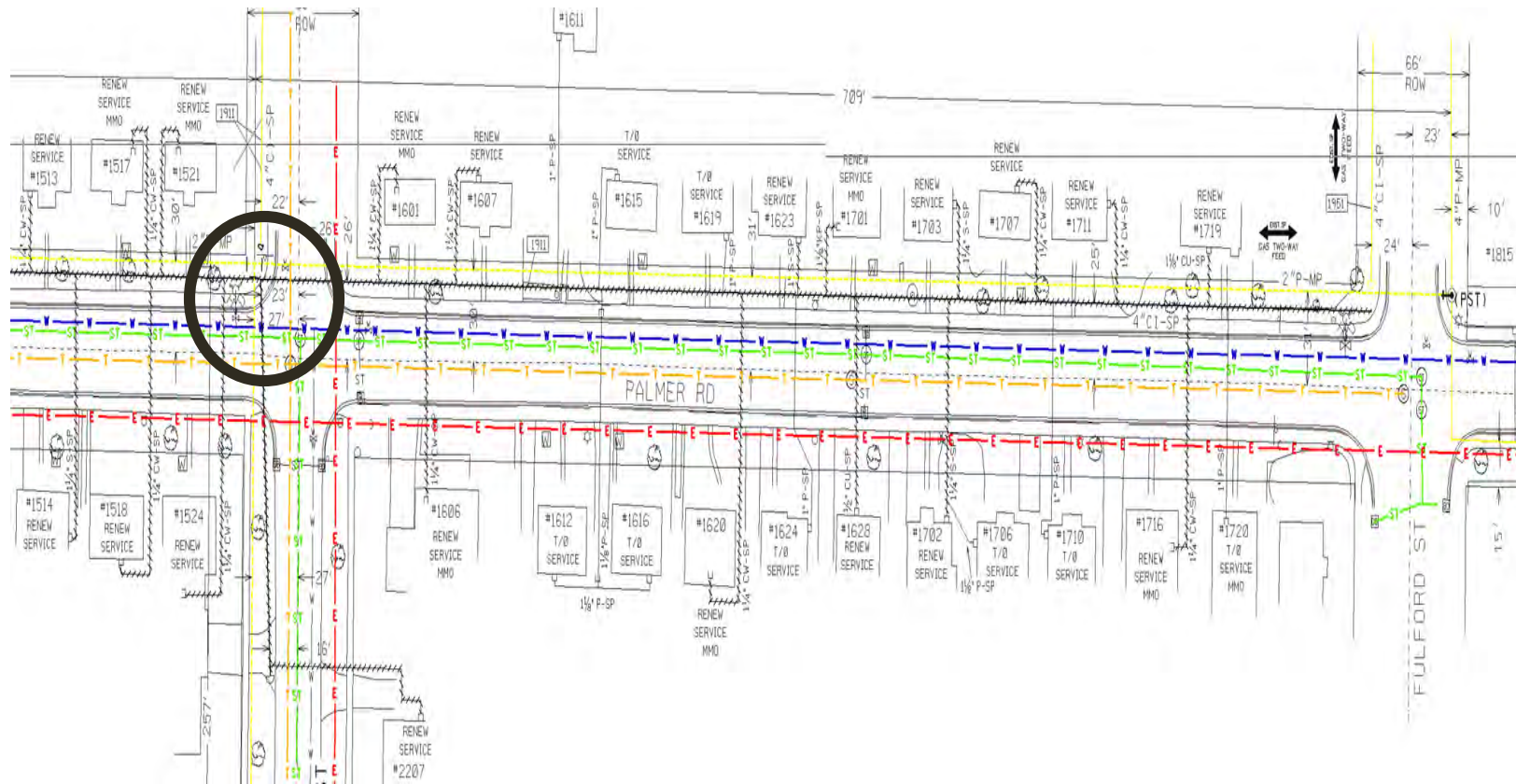
Day Nine -- Subcontractor



Subcontractor replacing sidewalk on south side of Palmer

- Subcontractor required to call in separate staking request for sidewalk work
- Utilities will stake facilities on south side of Palmer within three days

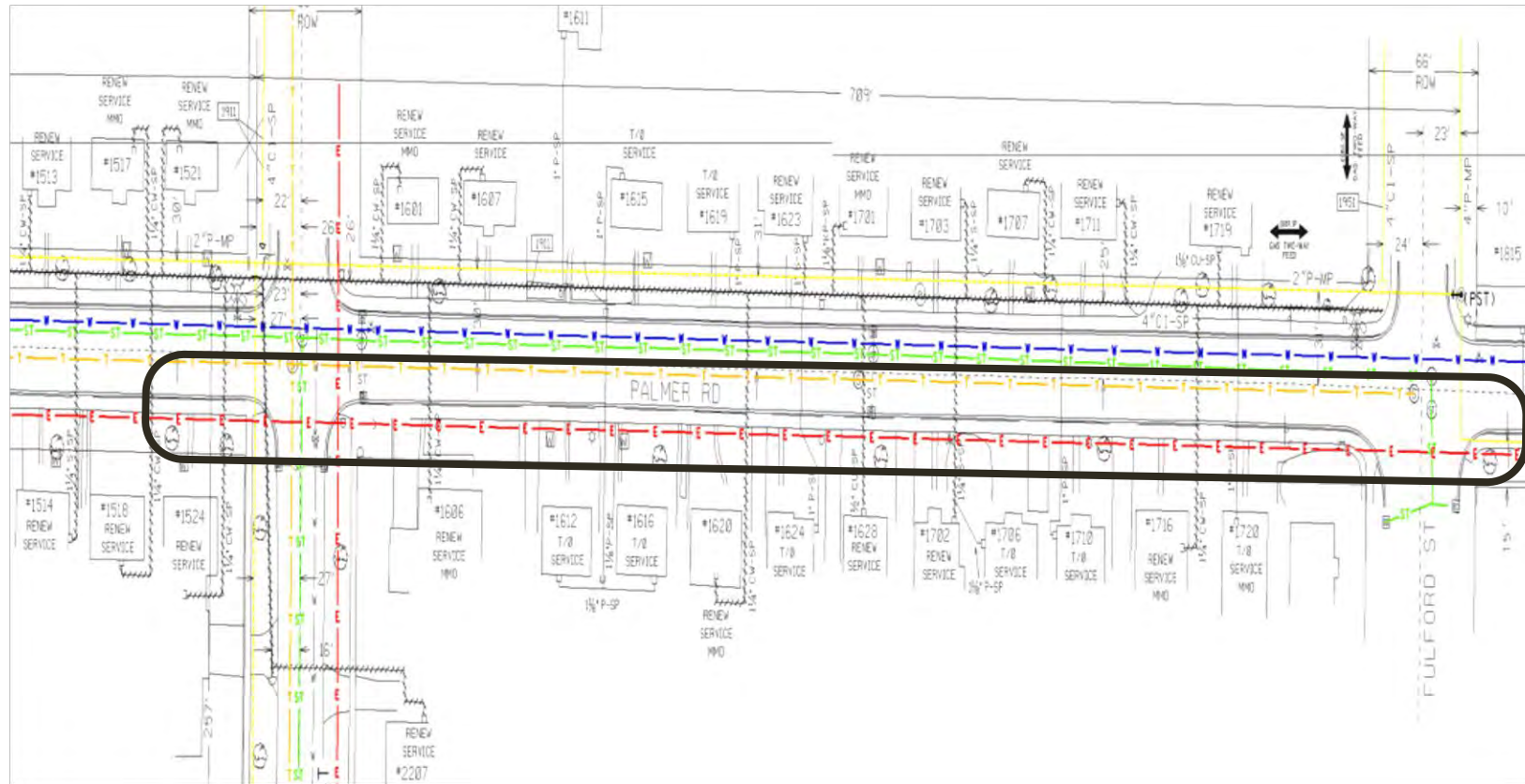
Day 18 – Destroyed Marks



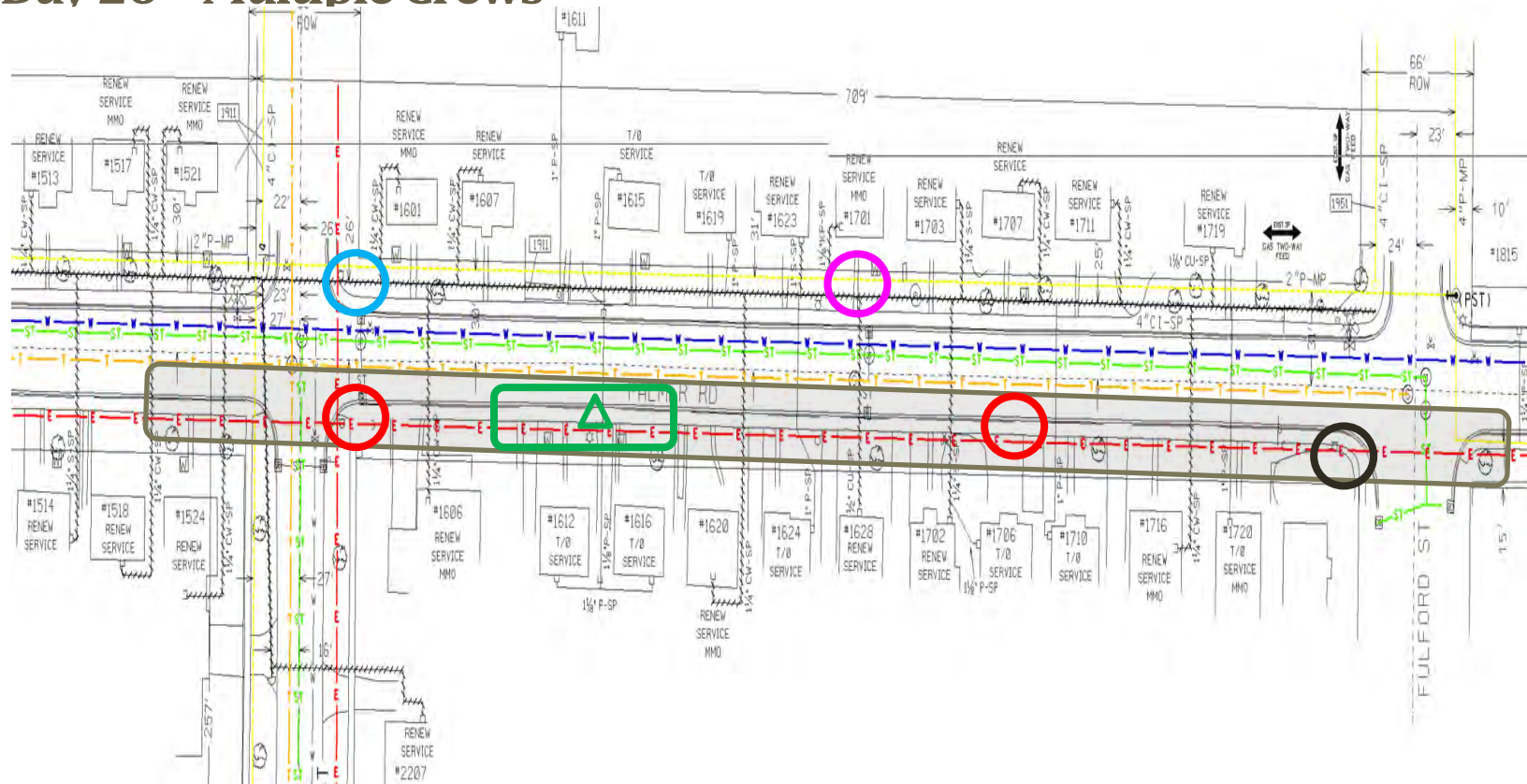
Excavator's crew goes to northwest corner of Cameron and Palmer to install catch basin – original marks no longer visible

- Restake request submitted: “restake NW corner of Palmer and Cameron due to destroyed marks for installation of catch basin “
- Utilities respond within 24 hours to stake facilities at NW corner

Day 25 - South Side of Road Milled



Day 26 – Multiple Crews



- 8:00AM Crew 1 – removing sub-base – destroyed marks
- 8:15AM – Crew 2 – install catch basin – destroyed marks
- 8:30AM – Crew 2 – install catch basin – destroyed marks
- 11:00AM – Crew 1 – finds unidentified cable – additional assist needed
- 9:00AM – Crew 3 – curb repair – destroyed marks
- 12:30PM – Crew 4 – install sign – unmarked electric riser on pole
- 1:00PM – Crew 5 – landscape work – additional assist required – can't find gas

Summary of Standard MISS DIG Process vs JPL

- There are advantages for excavators using JPL (streamlining communications related to MISS DIG staking)
- There are potential advantages to utilities/stakers depending on characteristics of site and construction activities
- ALL utilities must participate in JPL for excavator to derive benefits of JPL (otherwise excavator must follow standard process to cover non-participating utilities.)
- Documentation of daily communications is important
- Ongoing discussion needs to address who contributes for added cost of JPL.

