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January 4, 2015

Bonnie Anderson, CAA
City of Carencro, Planning Department
210 East St. Peter Street
Carencro, LA 70520

RE: El Paso Mexican Restaurant – Drainage Impact Analysis and Plan Review No. 2

Dear Ms. Anderson:

I have completed my review of the drainage impact analysis and construction plans for the above referenced project and have included my comments below. Please forward this information to Mr. Brian Mistich, P.E., Engineer of Record for this development. Should he have any questions about the information presented, I am available to meet with him and the City of Carencro.

As with all development review letters for the City of Carencro, the purpose of this review is to verify that the drainage analysis, construction plans, and construction specifications are in general conformance with the City of Carencro Ordinances. If deficiencies are identified at a later date, the Developer will be responsible for correcting identified deficiencies at no cost to the City of Carencro.

Please review the submitted information and should you have any questions feel free to give me a call at 337-237-2200.

Sincerely,

FENSTERMAKER

Luke Hebert, P.E.
Engineering Director

LMH/Hebert
Enclosures:

cc: 2071040.1MC

Review Summary

A. General Requirements:

1. Owner or Owner's representative shall inform the City of Carencro when the development is ready for final inspection.
2. Prior to requesting final inspection, Engineer of Record (EOR) shall submit all testing reports as detailed in this review as well as any permit approvals as required by federal, state, or local agencies. Such testing is required on all infrastructure improvements which will be submitted to the City for acceptance.
3. Construction testing and inspection is required to be supervised by the EOR and reports of findings must be submitted to the City of Carencro.
4. EOR shall provide the City of Carencro with two (2) copies of all items submitted and approved on the project. Items such as water and sewer distribution, or other similar items to be installed in the public easement and/or right-of-way must be submitted to the City of Carencro for review prior to ordering for the project.
5. Provide the vertical datum of elevations.
6. As a condition for approval and final acceptance of the improvements, the Owner's EOR shall provide a written certification upon completion of the improvements that the construction was in accordance with the construction plans and specifications.
7. Furnish three (3) sets of EOR signed and dated As-Built drawings of all improvements, including drainage, water, and sewer. This will be required prior to the final inspection. Final acceptance of the development will not be granted until the final inspection is completed and all punch list items are rectified.
8. Technical specifications shall be provided for the proposed development inside of the public easements and right-of-way (i.e. sewer, drainage, etc).
9. The EOR shall coordinate with the LADOTD to determine if a Traffic Impact Study is required for this development. If a Traffic Impact Study is required, please provide such studies and approval to the City of Carencro.
10. Please provide the location, description, and elevation of all permanent and temporary benchmarks which were used in the collection of the survey data for the project.
11. In most responses from EOR, a list of responses for each review comment by Fenstermaker is provided. In this list, the EOR recognizes the comments, states its position on the comment, and, where applicable, notes the relevant revisions to the design and construction documents.
12. It is the responsibility of the EOR to ensure that the Contractor builds the development in accordance with the plans and specifications. Any field changes to the final construction plans proposed by either the Contractor or EOR shall be submitted by the EOR in writing to the City for approval. If such deviations are not submitted for approval, the City may require at its own discretion the Developer to remove and re-install the proposed improvements according to the final approved plans.

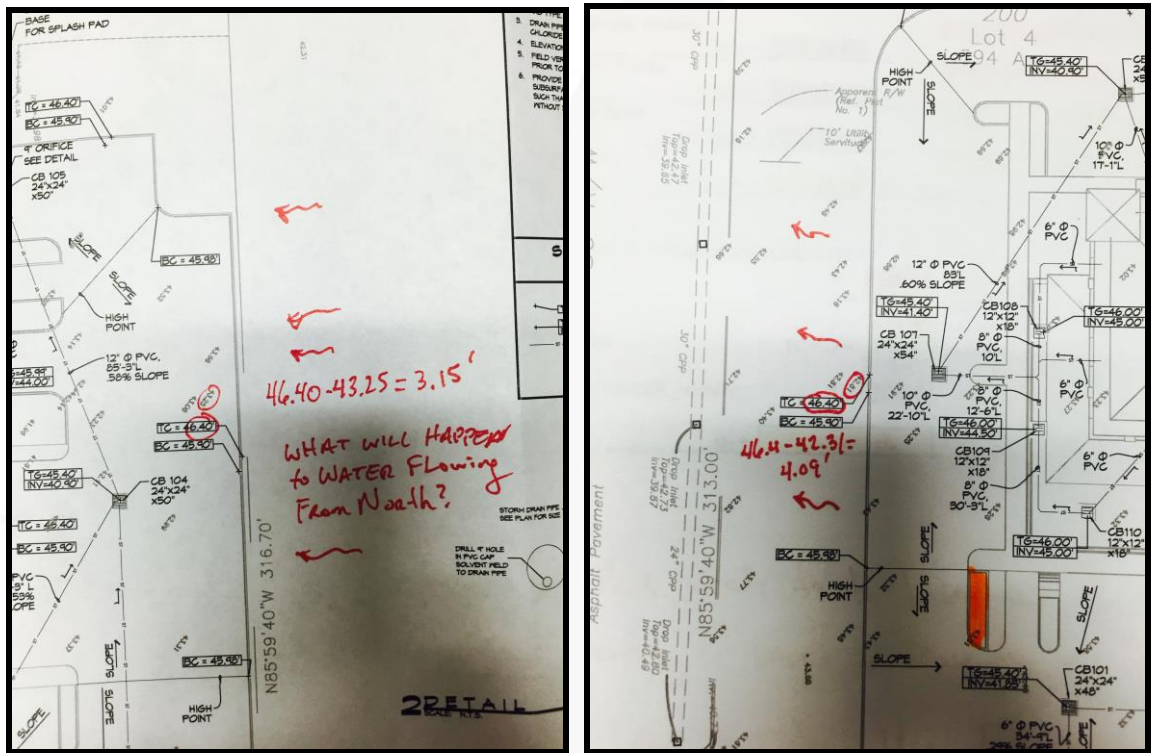
B. Drainage Analysis:

1. Please provide pre and post development drainage maps for the proposed site. Each map shall include the proposed site and the neighboring areas to illustrate existing drainage patterns toward and away from the property. The pre and post development drainage maps shall also include delineated drainage basins. Each delineated drainage basin shall have the following annotated on the maps: hydraulic lengths, hydraulic slopes, outfalls of each basin, and curve numbers or runoff coefficients. The maps shall clearly illustrate how the hydraulic lengths were computed. Each map shall also include the overall outfall of the site. The EOR should revisit Section II of the Carencro Drainage analysis checklist to better understand what is required for the drainage maps. All maps shall be drawn to scale. A construction drainage plan does not constitute a post development drainage map.
2. The EOR provided detention requirements for the proposed site based on a drainage analysis of a 10-year and 100-year storm event with an intensity calculated with a 60 minute duration for each storm. This is incorrect. The rational method uses the equation $Q = CiA$ in which “ i ” is the average rainfall intensity at the time of concentration. This information can be found in Chapter 3 – *Part C – Rational Method*, subsections 3-C.3 – *Hydrologic Analysis* and 3-C.3.2 – *Time of Concentration* of the 2011 LADOTD Hydraulics Manual. The EOR stated that the time of concentration for the post developed site is 7.15 minutes. The intensity computed at 7.15 minutes from the equation found in Chapter 3 – *Peak Discharge*, subsection 3.4.3 – *Rational Method* yields a value of 7.54 in/hr for the Post Development 10-year storm event. The peak discharge is $Q = 10.55$ cfs based on the following information:

$$Q = CiA \text{ with } C = 0.74, i = 7.54 \text{ in/hr, and } A = 1.89 \text{ Acres}$$

- Using this same methodology, the peak discharge is $Q = 4.14$ cfs at a time of concentration of 14.24 minutes for the pre-development 10-year storm event. This is a difference in peak discharge of 6.41 cfs which requires onsite detention. Please revise the drainage impact analysis to accurately compute the pre and post discharges for the 10-year and 100-year storm events.
3. The report shall include all hydrograph diagrams for all drainage basins in both pre and post development conditions, and the detention pond. The analysis shall also include a pond report for the detention basin. The requirement of this information can be found in Section 30-152 – *Information to be submitted for review* of the City of Carencro Code of Ordinances.
 4. Please investigate the effects of a design storm with tailwater on the system for both the 10-year and 100-year storm events.
 5. The EOR shall design and provide calculations for the outfall pipe.
 6. The drainage impact analysis references the outdated “1994 Louisiana Department of Transportation and Development Hydraulic Manual.” Please use and provide reference to the most current LADOTD Hydraulics Manual. As stated in Section 30-98, part (b), subsection (7) of the City of Carencro Code of Ordinances, the EOR shall utilize the most current edition of the LADOTD Hydraulics Manual.
 7. Please accurately complete the City of Carencro Drainage Analysis Checklist and include it in the next submittal per the Code of Ordinances.
 8. Please provide in your drainage analysis if the development will adversely affect and/or worsen the existing drainage of the neighboring properties. As mentioned above, the pre and post development drainage maps shall illustrate the existing drainage behavior of the neighboring properties. If the drainage of such properties is impacted, the post development drainage map and the drainage plan shall illustrate how the impacted drainage patterns will be mitigated.

9. The below images illustrate the difference in elevation between the proposed parking lot and the finished grade. The image on the left illustrates the northern edge of the parking lot on the property boundary and a 3.15' elevation difference with the adjacent property. Please discuss how this will impact the drainage of the neighboring property and how it will be constructed on the property boundary as shown. The image on the right illustrates the southern edge of the parking lot and a 4.09' elevation difference between the top of the curb and the natural ground. Please discuss how the grassy area south and west of the development will drain and if it requires its own drainage basin.



C. Plans - General

1. If a stormwater detention facility is necessary, a drainage servitude shall be provided around the detention facility and shall have a minimum of 20' access space around the top bank of the pond. A survey plat by a license surveyor will be required to dedicate a servitude.
2. The Developer shall be aware that a large portion of the parking lot and subsurface drainage along the southern side of the property is inside of the 60' Setback (35' for Future Road Widening and 25' for Permanent Setback) noted on the final plat by Ronkartz-Oestriecher dated 2014.
3. Provide a note on the plans which requires the Contractor of the development to comply with the stormwater pollution prevention plan as required by the City of Carencro.
4. The EOR shall provide all applicable construction details. This includes, but is not limited to, drainage, traffic control, and water utilities.

5. The drainage plan illustrates a proposed 20' drainage and utility servitude along the top bank of the coulee. Please clarify if this servitude has already been acquired. If so, please verify that the proposed development is not inside the servitude.

D. Plans - Drainage:

1. Cross sections of the detention pond in transverse and longitudinal directions shall be submitted. The cross sections shall include all pertinent elevations.
2. Construction plans, including details, shall be provided for the outfall pipe and all other drainage features.
3. A proposed grading plan shall be included in the construction plans.

E. Plans - Water:

1. All utility tie-in locations shall be coordinated with Buster Broussard, City of Carencro, 337-896-8481.
2. An inspector representing the City of Carencro is required during the construction of all water improvements inside of public easements.
3. Please see the attached detail for the double check valve assembly and revise the plans accordingly to incorporate this information.
4. A water plan shall be submitted to the City of Carencro for approval. This shall include drinking water service and fire protection. Water details shall be included in the construction plans.
5. The EOR shall locate the existing water mains in order to propose realistic and accurate connection locations for review purposes.
6. The water main located along the coulee on the western boundary was labeled incorrectly as the utility of the City of Carencro on the Developer's first plan submittal. The City of Carencro only owns and operates the water main located along Gloria Switch Road.
7. The EOR shall propose the 2" water service connection on the existing 8" water main that is located along Gloria Switch Road near the existing backflow preventer.

F. Plans - Wastewater:

1. An inspector representing the City of Carencro is required during the construction of all sewer improvements inside of public easements.
2. The sewer main located along the coulee on the western boundary of the property was labeled incorrectly as the utility of the City of Carencro on the Developer's first plan submittal. The City of Carencro only owns and operates the sewer main located along Gloria Switch Road.
3. A wastewater plan, which illustrates the proposed sewer service, shall be submitted to the City of Carencro for approval. If the EOR proposes the sewer service connection to the aforementioned main along the coulee, the EOR shall acquire approval in writing from the current owner of the 6" service line.