CALIFORNIA COASTAL COMMISSION NORTH COAST DISTRICT OFFICE 1385 EIGHTH STREET • SUITE 130 ARCATA, CA 95521





F12b

Filed:	10/5/16
180 th day:	4/3/17
Staff:	C. Kenyon-A
Staff Report:	10/14/16
Hearing Date:	11/4/16

STAFF REPORT: REGULAR CALENDAR

Application No.:	1-16-0346
Applicant:	PWM, Inc.
Location:	700 South G Street, Arcata, Humboldt County (APN 503-211-026).
Project Description:	Construct a 100-foot-tall lattice-style wireless telecommunications on a 400-square-foot slab foundation; install related equipment for three carriers including antennas, utilities, and control cabinetry; and install a six- foot-tall wood fence and landscaping around the perimeter of the 2,401-square-foot lease area.
Staff Recommendation:	Approval with conditions.

SUMMARY OF STAFF RECOMMENDATION

Commission staff recommends approval of Coastal Development Permit (CDP) Permit Application 1-16-0346 with conditions.

PWM, Inc. proposes to construct a wireless telecommunications facility within a 2,401 squarefoot lease area on a commercial/industrial zoned property at 700 South G Street, Arcata, Humboldt County. The facility would include a100-foot-tall, lattice-style tower and accessory equipment for three carriers including tower-mounted antennas, control cabinetry, backup 1-16-0346 (PWM, Inc.)

generators, and utility h-frames. The lease area would be surrounded by a six-foot-tall wooden fence and landscaping.

The major issues raised by this application are the project's consistency with the Commission's visual resource and hazard policies. In this case, staff believes the tower has been sited and designed to protect views to and along the coast, minimize the alteration of natural landforms, and be visually compatible with the character of the surrounding area. To ensure protection of visual resources, Commission staff recommends **Special Condition 6** requiring the applicant to install and maintain screening landscaping as proposed, **Special Condition 5** requiring Commission review of any future additions or improvements to the facility, and **Special Condition 2** requiring the applicant to remove the structures and restore the site in the case of future facility abandonment.

To ensure the project minimizes risk to life and property in an area of high geologic and flood hazard and assures structural integrity and stability, Commission staff recommends **Special Condition 4** which requires the applicant to submit final project plans for the Executive Director's review and approval that are consistent with the recommendations of a soils report prepared for the project by a consulting engineer, and include a final tower foundation plan stamped and signed by a licensed engineer.

Staff also recommends conditions to ensure protection of archaeological resources and water quality during project construction, and to ensure that the Applicant has the legal ability to undertake development on property owned by others and comply with all conditions of approval.

Staff believes that the proposed development, as conditioned, is consistent with all applicable Chapter 3 policies of the Coastal Act. The motion to adopt the staff recommendation of **approval** of Coastal Development Permit (CDP) 1-16-0346 with special conditions is found on page 4.

TABLE OF CONTENTS

I.	MOTION AND RESOLUTION	<u>4</u>
II.	STANDARD CONDITIONS	<u>4</u>
III.	SPECIAL CONDITIONS	<u>5</u>
IV.	FINDINGS AND DECLARATIONS	9
	A. PROJECT DESCRIPTION	<u>9</u>
	B. PROJECT SETTING	<u>_10</u>
	C. Federal Law	<u>10</u>
	D. Standard of Review	<u>12</u>
	E. OTHER AGENCY APPROVALS	<u>12</u>
	F. APPLICANT'S LEGAL INTEREST IN THE PROPERTY	<u>12</u>
	G. VISUAL RESOURCES	<u>13</u>
	H. PROTECTION OF WATER QUALITY	<u>17</u>
	I. ESHA	<u>_18</u>
	J. Hazards	<u>19</u>
	K. Archaeological Resources	<u>22</u>
	L. CALIFORNIA ENVIRONMENTAL QUALITY ACT	<u>23</u>

APPENDICES

<u>Appendix A – Substantive File Documents</u>

EXHIBITS

- Exhibit 1 Regional Location Map
- Exhibit 2 Vicinity Maps
- Exhibit 3 Site Map and Project Plans
- Exhibit 4 Alternatives Analysis and Visual Analysis
- Exhibit 5 City of Arcata Telecommunication Facilities Constraints Map
- Exhibit 6 Erosion and Sediment Control Plan
- Exhibit 7 Excerpts from the Soils Report

I. MOTION AND RESOLUTION

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve coastal development permit 1-16-0346 pursuant to the staff recommendation.

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS

This permit is granted subject to the following standard conditions:

- 1. **Notice of Receipt and Acknowledgment**: The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
- 2. **Expiration**: If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
- 3. **Interpretation**: Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.
- 4. **Assignment**: The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land**: These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

- 1. Evidence of Legal Ability of Applicant to Undertake Development on Property Owned by Others and Comply with Conditions of Approval. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT 1-16-0346, the applicant shall submit, for the review and approval of the Executive Director, evidence that clearly demonstrates that Joseph Lunn and Cheryll Moser are the legal owners of APN 503-211-026, and as such have formally agreed in writing that the applicant may undertake development on their property pursuant to Coastal Development Permit 1-16-0346 and as conditioned by the Commission herein.
- 2. Length of Development Authorization. PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT 1-16-0346, the applicant shall agree in writing that: (a) the coastal development permit authorizes the proposed facilities only so long as the Applicant is legally authorized by the property owner to use the site, but in no event more than thirty years from the date of Commission approval of the coastal development permit (i.e. until November 4, 2046); and (b) if, in the future, the facility is either no longer needed or no longer legally authorized, the applicant shall abandon the facility, remove all above-ground permanent structures, and restore the site as needed to re-establish the area consistent with the character of the surrounding area. Before performing any removal work in response to the requirements of this condition, the applicant shall contact the Executive Director of the California Coastal Commission to determine if an amendment to this coastal development permit or a new coastal development permit is necessary.
- 3. **Extension of Telecommunications Facilities Authorization or Facilities Removal**. Prior to the expiration of the authorization period of the permitted telecommunication facility set forth in Special Condition 2, the permittee or its successors shall submit to the Commission an application for a coastal development permit amendment to either remove the telecommunications facility in its entirety, change or reduce its size or configuration, or extend the length of time the facility is authorized. Provided a complete application is filed before the 30-year permit expiration, the expiration date shall be automatically extended until the time the Commission acts on the application. Any amendment application shall conform to the Commission's permit filing regulations at the time and shall at a minimum include the following:
 - A. An analysis, based on the best available science of updated flood hazards affecting the telecommunications facility from sea level rise, storm events, and other forms of inundation prepared by a licensed civil engineer with expertise in coastal engineering;

- B. An evaluation of alternatives that will protect the telecommunications facility from flood hazards from sea level rise, storm events, and other forms of inundation including, but not limited to, re-siting the telecommunications facility to locations where the facility would be protected from such hazards; and
- C. Written authorization from the underlying public trust lands trustee (City of Arcata or the State Lands Commission, if applicable) of the proposed amendment shall be required prior to issuance of the permit amendment to extend the authorization period.

4. Final Plans.

- A. PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT 1-16-0346, the applicant shall submit, for the review and approval of the Executive Director, final plans for the proposed wireless telecommunications facility in substantial conformance with the plans submitted by PWM Inc. dated September 9, 2016 and attached as Exhibit 3. All final plans shall be consistent with the recommendations contained in the June 2016 Soils Report prepared by Whitchurch Engineering for the facility. In addition, the final plans shall demonstrate that all antennas to be installed shall be painted or finished with a material that matches the galvanized steel tower. The tower foundation plan shall be stamped and signed by a licensed engineer.
- B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.
- 5. **Future Development Restrictions.** This permit is only for the development described in CDP 1-16-0346. Any future improvements or changes to the permitted structures shall require an amendment to CDP 1-16-0346 from the Commission or shall require an additional coastal development permit from the Commission.

6. Final Landscaping Plans.

- A. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT 1-16-0346, the applicant shall submit, for the review and approval of the Executive Director, final landscaping plans.
 - i. The plans shall demonstrate, at a minimum, all of the following:
 - a. Only native and/or non-invasive plant species shall be planted. No plant species listed as problematic and/or invasive by the California Native Plant Society (<u>http://www.CNPS.org/</u>), the California Invasive Plant Council (formerly the California Exotic Pest Plant Council) (<u>http://www.calipc.org/</u>), or as may be identified from time to time by the State of California shall be employed or allowed to naturalize or persist on the site. No plant species listed as a "noxious weed" by the State of California or the U.S. Federal Government shall be shall be planted or allowed to naturalize or persist on the site;
 - b. All planting shall be completed within 90 days of completion of construction;

- c. The use of rodenticides containing any anticoagulant compounds is prohibited;
- d. If using potable water for irrigation, only drip or microspray irrigation systems shall be used;
- e. The landscaping shall include native and/or non-invasive shrubs and/or trees that shall, over time, grow to substantially hide the tops of cabinets and other ground-installed improvements; and
- f. All proposed plantings shall be maintained in good growing conditions throughout the life of the project, and whenever necessary, shall be replaced with new plant materials.
- ii. The plans shall include, at a minimum, the following components:
 - a. A final landscape site plan map depicting the species and location of all plant materials to be planted on the property;
 - b. A schedule for the planting of the proposed landscaping; and
 - c. Provisions for ensuring that all proposed plantings shall be maintained in good condition throughout the life of the project to ensure continued compliance with the approved final landscape plan.
- B. The permittee shall undertake landscaping in accordance with the approved final landscaping plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.
- 7. **Construction Responsibilities.** The permittee shall comply with the following construction-related requirements:
 - A. All ground-disturbing activities and asphaltic-concrete paving operations shall occur during periods of dry weather only;
 - B. If rainfall is forecasted during the time construction activities are being performed (i.e., the National Weather Service's Northwestern California forecast for the Arcata area predicts a greater than 50 percent chance of precipitation for the timeframe in which the work is to be conducted), all onsite stockpiles shall be covered and secured, and any exposed soil areas shall be promptly mulched with weed-free straw or covered with sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation;
 - C. Sediment control BMPs including silt fencing shall be installed as proposed prior to and maintained throughout the construction period to trap and remove eroded sediment from runoff in order to prevent sedimentation of coastal waters;
 - D. To minimize wildlife entanglement and plastic debris pollution, temporary rolled erosion and sediment control products (such as fiber rolls and silt fencing) that incorporate plastic netting (such as polypropylene, nylon, polyethylene, polyester, or other synthetic fibers) shall not be used. Acceptable alternatives include erosion and sediment control products without netting, products made with loose-weave natural fiber netting, and unreinforced silt fences;

- E. Staging and storage of construction equipment and materials shall occur on paved or gravel surfaces at least 100 feet from coastal wetlands, drainage courses, and storm drain inlets;
- F. All on-site stockpiles of construction materials, soil, and other excavated materials shall be contained at all times and shall be covered during storm events to minimize discharge of sediments and other pollutants;
- G. Any excess excavated material and other construction debris resulting from construction activities shall be removed immediately upon completion of component construction, and shall be disposed of at a disposal site outside the coastal zone or within the coastal zone pursuant to a valid coastal development permit;
- H. BMPs for concrete paving and grinding operations and storm drain inlet protection shall be employed to prevent concrete grindings, concrete slurry, and paving rinseate from entering drop inlets or sheet-flowing into coastal waters;
- I. Fuels, lubricants, and solvents shall not be allowed to enter coastal waters or wetlands. All equipment used during construction shall be free of oil and fuel leaks at all times. Any fueling, equipment maintenance, concrete washout, and washing of construction equipment shall occur at least 100 feet away from coastal waters and wetlands; and
- J. Hazardous materials management equipment including oil containment booms and absorbent pads shall be available immediately on-hand at the project site. Any accidental spill shall be rapidly contained and cleaned up.
- 8. Assumption of Risk, Waiver of Liability and Indemnity. By acceptance of this permit, the permittee acknowledges and agrees (i) that the site may be subject to hazards, including but not limited to earthquake shaking, liquefaction, tsunami inundation, and flooding, many of which will worsen with future sea level rise; (ii) to assume the risks to the permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.
- 9. **Protection of Archeological Resources**. If an area of cultural deposits or human remains is discovered during the course of the project, all construction shall cease and shall not recommence until a qualified cultural resource specialist, in consultation with the Tribal Historic Preservation Officers of the Wiyot Tribe, the Bear River Band of Rohnerville Rancheria, and the Blue Lake Rancheria, analyzes the significance of the find and prepares a supplementary archaeological plan for the review and approval of the Executive Director, and either: (a) the Executive Director approves the Supplementary Archaeological Plan and determines that the Supplementary Archaeological Plan's recommended changes to the proposed development or mitigation measures are *de minimis* in nature and scope, or (b) the Executive Director reviews the Supplementary Archaeological Plan, determines that the changes proposed therein are not *de minimis*, and the permittee has thereafter obtained an amendment to CDP 1-16-0346.

1-16-0346 (PWM, Inc.)

10. **State Lands Commission Review**. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT 1-16-0346, the Applicant shall provide to the Executive Director a written determination from the State Lands Commission that: (A) no State or public trust lands are involved in the development; or (B) State or public trust lands are involved in the development by the State Lands Commission have been obtained; or (C) State or public trust lands may be involved in the development, but, pending a final determination, an agreement has been made with the State Lands Commission for the approved project as conditioned by the Commission to proceed without prejudice to that determination.

IV. FINDINGS AND DECLARATIONS

The Commission hereby finds and declares as follows:

A. PROJECT DESCRIPTION

PWM, Inc. proposes to construct a wireless telecommunications facility that will be able to accommodate up to four wireless providers at 700 South G Street, Arcata, Humboldt County (Exhibits 1-2). The facility would include a 100-foot-tall, lattice-style wireless telecommunication tower on a 400-square-foot concrete slab foundation. The tower and the wireless providers' accessory equipment would be located within a 2,401 square-foot lease area. The lease area would be enclosed by a six-foot-tall fence with landscaping planted around the perimeter. No artificial lighting is proposed as part of the project.

The applicant is currently proposing equipment for three carriers with six tower-mounted antennas each at 60, 80, and 100 feet above the ground. Accessory equipment within the lease area would initially include three coax bridges, two concrete pads with equipment cabinets, one equipment shelter with two HVAC units, two utility h-frames, three standby generators, and one propane tank. The tower would be supported by three concrete piers installed approximately 13 feet into the ground topped by a two-foot-deep, concrete slab foundation. The small ancillary structures would be supported by slab, on-grade foundations. See Exhibit 3 for the proposed project plans.

To improve the stability of the foundation for the lattice tower, approximately 30 cubic yards of unconsolidated fill would be excavated from the tower site and replaced with 30 cubic yards of compacted gravel fill. An additional 34 cubic yards of compacted gravel fill would be placed on the balance of the lease site. In addition, 20 cubic yards of fill material would be excavated for a utility trench between the existing onsite warehouse and the lease area. This fill would be replaced with 20 cubic yards of compacted sand and gravel.

Equipment and materials would be staged on the existing graveled parking area, located approximately 20 feet southwest of the proposed lease area. Construction equipment would include backhoes to excavate fill, concrete trucks to pour foundations for the tower and the carrier's cabinetry, dump trucks to deliver gravel, a mobile crane to install the lattice tower, and truck cranes to install the wireless carriers' electrical and transmitter cabinets.

B. PROJECT SETTING

The proposed cell tower would be located near the center of a relatively flat, low-lying, 4.5-acre parcel on the east side of South G Street near the northeastern shore of Humboldt Bay (Exhibit 2). The parcel has a local Industrial Limited land use designation and Industrial Commercial zoning. The northwestern third of the parcel is developed with an approximately 8,000-square-foot warehouse with an adjacent overhang and storage shed surrounded by a paved parking lot. The warehouse currently houses a plumbing business and an indoor skate park. The remainder of the parcel is covered in grassy vegetation, much of which overlays approximately four feet of imported fill permitted by the Commission in 1990 under CDP 1-90-250. Tidally-influenced drainage ditches line the west and east sides of the parcel. The proposed 49-foot-by-49-foot wireless telecommunication facility lease area would be located directly adjacent to the paved parking lot approximately 50 feet to the southeast of the warehouse within a portion of the previously filled area.

The site's warehouse is the southern-most building in a string of commercial/industrial developments that line the eastern side of South G Street. The City's main corporation yard and primary wastewater treatment facility and the Arcata Marsh & Wildlife Sanctuary (Arcata Marsh) are located across South G Street to the west. The Arcata Marsh is primarily comprised of freshwater, brackish, and salt marshes, tidal sloughs, mudflats, and grassy uplands. Grazed seasonal wetlands and Highway 101 are located to the east of the project site. Highway 101 runs north-south approximately a quarter mile east of the subject property, visible across the undeveloped agricultural lands.

C. FEDERAL TELECOMMUNICATIONS ACT

Public entities' powers to regulate the placement of telecommunication facilities are limited by the Federal Communications Commission ("FCC") and Federal law, specifically the Telecommunications Act of 1996 ("TCA"). First, the Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in USC, Titles 15, 18 & 47), precludes state and local governments from enacting ordinances that prohibit or have the effect of prohibiting the provision of telecommunications services, including "personal wireless services."

Second, U.S. Codes Title 47, section 253 preempts state and local regulations that maintain the monopoly status of a telecommunications service provider. Section 253(a) states: "No State or local statute or regulation, or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service."

Third, the TCA also contains provisions applicable only to *wireless* telecommunications service providers. 47 USC section 332(c)(7) preserves the authority of local governments over zoning decisions regarding the placement and construction of wireless service facilities, subject to enumerated limitations in section 332(c)(7)(B). One such limitation is that regulations "shall not prohibit or have the effect of prohibiting the provision of personal wireless services." (47 USC section 332(c)(7)(B)(i)(II).) An agency runs afoul of either 47 USC section 253 or 47 USC section 332(c)(7) if (1) it imposes a "city-wide general ban on wireless services" or (2) it actually imposes restrictions that amount to an effective prohibition (47 USC section 253(a); 47 USC

section 332(c)(7)(B)(i)(II)). A public entity also can run afoul of TCA's effective prohibition clause if it prevents a wireless service provider from closing a significant gap in service coverage, taking into account the feasibility of alternative facilities or site locations.

Fourth, state and local governments cannot "regulate the placement, construction and modification of cellular facilities on the basis of environmental effects of radio frequency emissions" if the facilities comply with the FCC regulations with respect to such emissions. (47 USC section 332(c)(7)(B)(iv).) If an agency denied or regulated a cell phone tower on the basis of the environmental effects of radio frequency emissions (RFEs) that comply with the federal regulations, then that agency action is preempted.

The limitations upon a state and local government's authority with respect to telecommunications facilities contained within the Telecommunications Act of 1996 (TCA) do not state or imply that the TCA prevents public entities from exercising their traditional prerogative to restrict and control development based upon aesthetic or other land use considerations. Other than the above-identified enumerated exceptions, the TCA does not limit or affect the authority of a state or local government. Though Congress sought to encourage the expansion of telecommunication technologies, the TCA does not federalize telecommunications land use law. Instead, Congress struck a balance between public entities and telecommunication service providers. Under the TCA, public entities retain control "over decisions regarding the placement, constructions, and modification of telecommunication facilities." (47 USC § 332(c)(7)(A).)

State and local governments must act "within a reasonable time frame" in acting on applications, and decisions to deny such requests must be "in writing and supported by substantial evidence contained in a written record." (47 USC section 332(c)(7)(B)(iii).) On November 18, 2009, the Federal Communications Commission (the "FCC") released a Declaratory Ruling clarifying Section 332(c)(7) of the Telecommunications Act. See In Re: Petitioner for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B) to Ensure Timely Siting Review, Etc., FCC 09-99 (FCC November 18, 2009) (the "Ruling")). This declaratory ruling defined what is a presumptively "reasonable time" beyond which an agency's inaction may constitute a prohibited failure to act. The FCC found that "a reasonable period of time" upon application completeness is, presumptively, 90 days to process personal wireless service facility siting applications requesting collocations and 150 days for all other applications. The ruling permits a wireless service provider whose filed application has been pending for a period of 90 days for collocation applications, and 150 days for all other applications to seek judicial review within 30 days on the basis that a state or local permitting authority failed to act on the application within "a reasonable time." The state or local government would have the opportunity to rebut the presumption of reasonableness. On May 20, 2013, the U.S. Supreme Court upheld the Fifth Circuit Court of Appeals' decisions in consolidated City of Arlington Texas et al. v. Federal Communications Commission et al., (2013) 133 S. Ct. 1863) affirming the FCC's determination regarding the above-identified timeline provisions of the TCA.

In summary, while state and local governments continue to have the right to regulate telecommunications facilities, consistent with the existing limitations within the TCA, a state or local government may not: (1) unreasonably discriminate among providers of functionally equivalent services; (2) prohibit the provision of personal wireless services; (3) delay action on

the application beyond a reasonable period of time after the request is duly filed; or (4) regulate the placement, construction, or modification on the basis of environmental effects of radio frequency emissions if in compliance with FCC regulations.

D. STANDARD OF REVIEW

The proposed project is located within the Commission's retained jurisdiction. The City of Arcata has a certified local coastal program (LCP), but the site is within an area shown on State Lands Commission maps over which the state retains a public trust interest. Therefore, the standard of review that the Commission must apply to the development is the Chapter 3 policies of the Coastal Act.

E. OTHER AGENCY APPROVALS

City of Arcata

The City of Arcata's Planning Commission unanimously approved a Use Permit and Design Review Permit for the proposed project on August 23, 2016. The California Department of Fish and Wildlife (CDFW) reviewed the Initial Study and Mitigated Negative Declaration prepared by the City and determined that the project has no potential effect on fish, wildlife, and habitat.

California State Lands Commission

The SLC has direct jurisdiction and authority over ungranted sovereign tidelands and submerged lands underlying the State's navigable waterways (ocean, bays, sloughs, lakes, and rivers) as well as over lands subject to the public trust. The project area includes filled former tidelands that are subject to the public trust. To ensure that the Applicant has the legal ability to undertake all aspects of the project on these public lands, the Commission attaches **Special Condition 10**. This condition requires that the project be reviewed and where necessary approved by the SLC.

F. APPLICANT'S LEGAL INTEREST IN THE PROPERTY

PWM, Inc., the applicant, will be leasing the project area from Joseph Lunn and Cheryll Moser, the property owners. Under Section 30601.5 of the Coastal Act, an applicant for a CDP does not need to be the owner of a fee interest in the property on which the proposed development is located as long as the applicant can demonstrate a legal right, interest, or other entitlement to use the property for the proposed development, and as long as all holders or owners of any other interests of record in the affected property are notified in writing of the permit application and invited to join as coapplicants. In addition, Section 30601.5 of the Coastal Act requires that the applicant demonstrate the authority to comply with all conditions of approval prior to issuance of a CDP.

The applicant has signed a lease agreement with the property owners for use of the property for the wireless telecommunications facility. The lease covers the approximately 2,500-square-foot lease area as well as access and utility easements, and entitles the applicant to use the premises to construct, operate, modify as necessary, and maintain a communications antenna, any access road, one or more equipment buildings, communication cabinets, and a security fence, together with all necessary lines, anchors, connections, devices, and equipment for the transmission, reception, encryption, and translation of voice and data signals by means of radio frequency energy and landline carriage. The lease also provides that the applicant shall remove the above ground portions of the telecommunications facility once the lease is terminated. To ensure that the

applicant has the authority to comply with all conditions of approval of CDP 1-16-0346 on the subject property (APN 503-211-026), the Commission attaches **Special Condition 1**, requiring that the applicant, prior to permit issuance, show evidence that the property owners have agreed in writing that the applicant may undertake development on their property pursuant to CDP 1-16-0346 as conditioned.

The term of the aforementioned lease agreement is five years, with automatic renewal for up to five additional terms of five years each (for a total of 30 years). To address the temporary nature of the lease agreement, the Commission attaches **Special Condition 2** which requires in part that the applicant agree in writing that CDP 1-16-0346 authorizes the proposed facility only so long as the applicant is legally authorized by the property owner to use the site and in no event no longer than 30 years.

The Commission finds that as conditioned, the development is consistent with the requirements of Section 30601.5 of the Coastal Act.

G. VISUAL RESOURCES

Section 30251 of the Coastal Act states in applicable part:

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality of visually degraded areas.

Section 30251 requires that all new development be sited and designed to (a) protect views to and along the coast, (b) minimize the alteration of natural landforms, and (c) be visually compatible with the character of the surrounding area.

Protect Views To and Along the Coast

The proposed tower's location over half a mile away from, and 25 feet lower in elevation than downtown Arcata will limit the visibility of the tower (See Exhibit 4, pgs. 15-18). Furthermore, the proposed lease area is located toward the center of the 4.5-acre property, where the base of the proposed tower will be partially blocked by an existing warehouse from views from South G Street. However, the project improvements, particularly the upper portion of the lattice tower and antennae arrays, will be visible from public vantage points, including vantage points within the Arcata Marsh, along South G Street, and along Highway 101. The applicant has prepared a series of photo simulations depicting the tower from the various surrounding public vantage points with views of the project site (Exhibit 4 pgs. 6-14). The proposed tower will be located approximately 225 feet east of South G Street and 300 feet east of the nearest trail in the Arcata Marsh, and will be viewed against a backdrop of wooded hills. As depicted in the photo simulations, because of the backdrop of wooded hills and the fact that the tower will be a visually-porous lattice structure, the tower will not significantly affect views of the coastal ridge from South G Street or the Arcata Marsh.

The tower will be located to the west of Highway 101 and is visible from the highway across a field of grazed seasonal wetlands. However, as the tower site is approximately 1,500 feet away from this stretch of the highway, the tower will appear small from the road. In addition, the tower will not block blue water views of Humboldt Bay from the highway because the bay is not visible in this location. Therefore, as sited and designed the telecommunications tower facility will protect views to and along the ocean and scenic coastal areas.

Minimize Landform Alteration

The proposed site is comprised of relative flat, diked former tidelands that have been covered in approximately four feet of imported fill and developed for industrial purposes with a warehouse and parking lot. Minimal grading will be necessary to replace this imported fill with compacted gravel fill to establish a foundation for the piers of the telecommunications tower. In addition, no tree removal will be necessary as the site is covered in grassy vegetation. Therefore, the telecommunications tower facility will minimize the alteration of natural landforms.

Ensure Visual Compatibility

The proposed wireless telecommunications facility will be compatible with the character of the surrounding area which is a mix of marsh and bay lands, agricultural lands, and commercial and industrial developments. Although the proposed tower will be in close proximity to open space and agricultural fields, it will be located on a private property zoned and developed for commercial and industrial uses. It will also be located across the street from the City's wastewater treatment facility and corporation yard and directly south of other active heavy commercial and industrial uses along the east side of South G Street including a contractor's yard, metal scrap yard, and Arcata Garbage Company.

In addition, the project site is located in close proximity to a number of other tall utility structures, including (a) a string of approximately 40-foot-tall utility poles along South G Street; (b) three existing 115-foot-tall steel lattice high-voltage PG&E power poles that traverse the Arcata Marsh in a north-south orientation approximately 400, 700 and 1,500 feet away from the project site; and (c) a 115-foot-tall lattice radio tower located approximately one quarter mile to the southeast of the project site near the intersection of South G Street and Highway 101 (Exhibit 4, pg. 5). As depicted in the photo simulations (Exhibit 4, pgs. 6-14), particularly from Highway 101, the proposed 100-foot-tall lattice style tower appears to be a part of the existing string of PG&E lattice towers, and is no more visually prominent than the surrounding utility poles and towers.

Furthermore, no lighting is proposed on the tower or in the lease area, and the steel lattice material will have a galvanized surface to eliminate shine or glare. The proposed antennas will be painted or finished with a material that matches the galvanized steel tower. The applicant also proposes to screen the base of the tower and the proposed accessory structures by constructing a six-foot-tall solid wood fence around the perimeter of the lease area and installing landscaping around the fence. To ensure the landscaping is successful in screening the visual clutter of the equipment on the ground within the lease area, the Commission attaches **Special Condition 6**. Special Condition 6 requires the applicant to submit a final landscaping plan that demonstrates in part that (a) the landscaping includes native and/or non-invasive shrubs and/or trees that will, over time, grow to substantially hide the tops of cabinets and other ground-installed improvements; (b)

landscaping will be installed within 90 days of completion of construction; and (c) all proposed plantings will be maintained in good growing conditions throughout the life of the project, and whenever necessary, will be replaced with new plant materials.

As previously mentioned, the applicant is currently proposing equipment for three carriers, but has designed the tower to accommodate four carriers. To ensure that any additional equipment added to the proposed tower for a fourth carrier does not significantly increase the height of the tower or otherwise create adverse visual impacts, the Commission attaches **Special Condition 5**. Consistent with the requirements of Section 30600 of the Coastal Act, Special Condition 5 requires that any modification to the approved coastal development permit, including additions or improvements to the structure, will require a CDP amendment or new CDP so that the Commission will have the ability to review the visual impact of any proposed changes or additions. The proposed telecommunications facility is a form of public works facility as defined in Section 30114(a) of the Coastal Act. Therefore, future improvements to the approved telecommunications facility would not be exempt from coastal development permit requirements pursuant to Section 30610(b) of the Coastal Act.

In the future, the proposed tower may be abandoned because of changes in technology in the telecommunications industry, a termination of the lease with the property owner, or another reason. In order to prevent the area from becoming littered with outdated and obsolete facilities, the Commission attaches **Special Condition 2** requiring the applicant to submit a written statement agreeing to remove the structures and restore the site in the future if the facility is no longer needed or legally authorized by the property owner. As conditioned, the development will be visually compatible with the character of the surrounding area.

Alternatives

While the proposed facility will not have significant adverse impacts on the visual quality of the area, the Commission has been concerned with the cumulative impacts on visual resources created by the proliferation of telecommunications equipment. Accordingly, the Commission has required similar facilities to be the least visually intrusive alternative, and has permitted such proposed development only if those facilities cannot otherwise be co-located on an existing site.

The purpose of the tower is to fill gaps in coverage and add additional capacity in Arcata, Sunny Brae, Bayside, Indianola, and the surrounding areas. In terms of site criteria, the applicant has indicated that the site must be located as close as feasible to downtown Arcata and must have a line of site north along Highway 101 to Humboldt State University, south along Highway 101 and Old Arcata Road, east to Bayside, and west along Samoa Boulevard. The applicant has submitted an alternatives analysis that explores the feasibility of (a) co-location on existing nearby towers and (b) alternative locations for a new tower (Exhibit 4, pgs. 1-4).

Co-Location on an Existing Tower

The nearby existing facilities are primarily located on hills to the east of the town at Humboldt State University (at 155, 190, and 282 feet in elevation), Fickle Hill (at 1,746 and 1,820 feet in elevation) and Blue Lake (at 580 and 594 feet elevation). According to the applicant, all nearby existing facilities fail to meet line of site criteria, coverage requirements, or capacity objectives. For instance, a number of the facilities are at or near full capacity and some are clustered too close to other cell towers to host the same carriers. Therefore, it is not feasible to co-locate the telecommunications equipment on existing telecommunications towers in the area.

Alternative Siting for a New Tower

The City's municipal code only allows wireless telecommunication facilities in commercial, industrial, and public facilities zoning districts (with a use permit); and requires that new facilities be at least 1,000 feet from any residence, and 1,500 from any historic district, school, or hospital. As depicted by the constraints map attached as Exhibit 5, these restrictions severely limit the potential locations for a new facility in the City. In addition, in order for the proposed tower to obtain line-of-site contact with the existing towers on the hillside above Humboldt State University, the new tower must be located in the west/southwest area of the City.

As mentioned above, the applicant has submitted an alternatives analysis that explores the limited number of potential alternative locations for a new facility in the City given the zoning restrictions and line-of-site requirements (See Exhibit 4, pgs. 1-4). According to the analysis, these potential alternative sites are not feasible and/or less environmentally damaging or visually intrusive. For example, the alternatives analysis explores the potential for siting antennas on the nearby existing 115-foot-tall PG&E lattice towers, but finds that the towers were not constructed to accommodate additional equipment loading and are therefore not a feasible alternative. In addition, the PG&E towers have poor road access and are located in or near wetlands and therefore using the existing towers would cause more impacts to wetlands and other environmentally sensitive habitat areas. Another alternative explored by the analysis is siting the tower on another commercial-industrial property on South G Street. However, as the other nearby properties are already more densely developed than the proposed property, they do not have the space to accommodate as large a facility serving as many wireless carriers without hindering the property owners' remainder uses. Furthermore, the visual impact of siting at another nearby industrial property would be no less intrusive than the proposed site.

Alternative Design

The City's municipal code requires that the height of all telecommunication facilities be a minimum functional height to facilitate the co-location of at least three providers. The 100-footheigth of the proposed tower allows the tower to accommodate up to four independent providers and therefore exceeds the City's minimum height requirement. Although the ability to accommodate four independent providers requires a taller structure, the visual impact of the increased height is offset by the visual benefit of needing fewer towers overall with increased co-location.

The applicant proposes a lattice tower to mimic the nearby string of 115-foot-tall PG&E lattice towers that traverse the City's Corp Yard and Marsh. In its local review of the project, the City considered stealth designs such as trees and water towers but concluded that the lattice tower would be the most visually unobtrusive and compatible design in the given location.

The Commission thus finds that, there is no less environmentally damaging alternative, and as conditioned, the project is consistent with Section 30251 of the Coastal Act.

H. PROTECTION OF WATER QUALITY

Section 30230 of the Coastal Act states, in applicable part:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 of the Coastal Act states:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

The proposed project will disturb an approximately 2,600-square-foot graveled area near the center of a relatively flat 4.5-acre property over 100 feet from wetlands and drainage ditches. The proposed project involves ground disturbance, paving, and the use of heavy equipment that could result in sediment, debris, or hazardous materials entering coastal wetlands and impacting the biological productivity and quality of coastal waters. To protect nearby wetlands, the applicant proposes a number of erosion and sediment control and pollution prevention measures during project construction including: installing silt fencing or wattles as perimeter sediment control barriers; covering soil and building materials stockpiles with mulch, plastic sheeting or tarps to prevent erosion; and performing all work from existing paved and gravel portions of the site. The applicant has submitted an erosion and sediment control site plan showing the proposed location of sediment control barriers at the project site (Exhibit 6).

To further minimize temporary construction impacts to the biological productivity and quality of nearby coastal wetlands, the Commission imposes **Special Condition 7**. Special Condition 7 requires that a suite of best management practices be employed during the construction of the project, including, but not limited to: (a) performance of all ground disturbing activities and asphaltic-concrete paving operations during dry-weather periods only; (b) installation of silt fencing as proposed prior to, and maintained throughout, the construction period; (c) staging and storage of construction equipment and materials on paved or gravel surfaces at least 100 feet from coastal wetlands, drainage courses, and storm drain inlets; (d) containment of all on-site stockpiles of construction materials, soil, and other excavated materials; (e) removal and disposal of any excess excavated material and construction debris resulting from construction activities at a disposal site outside the coastal zone or within the coastal zone pursuant to a valid coastal development permit; (f) utilization of concrete paving and grinding operational constraints and

inlet protection barriers around drop inlets; (g) performance of heavy equipment fueling, equipment maintenance, concrete washout, and washing of construction equipment at locations at least 100 feet away from coastal waters and wetlands; and (h) maintenance of adequate supplies of hazardous materials spill prevention and clean-up equipment on site.

Therefore, the Commission finds that the project as conditioned will minimize the project's potential impacts on the biological productivity and quality of coastal waters and wetlands consistent with Sections 30230 and 30231 of the Coastal Act.

I. ENVIRONMENTALLY SENSITIVE HABITAT AREAS (ESHA)

Coastal Act Section 30107.5 defines "environmentally sensitive area" as:

...any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Coastal Act Section 30240 states that:

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

No environmentally sensitive habitat areas are known to exist at the project site but migratory birds may fly over the site. The site is located along the Pacific Flyway in close proximity to the Arcata Marsh and Wildlife Sanctuary and other wetlands associated with Humboldt Bay and its tributaries that attract large numbers of migratory birds.

According to the U.S. Fish & Wildlife Service (USFWS) website, approximately 6.5 million migratory birds collide with communication towers in the United States annually. On overcast nights, lights on communication towers refract off water or other particles in the air creating an illuminated area around the towers. When migrating birds pass into the lighted area, they are reluctant to leave. As the birds congregate around the structure, collisions with the structure and other birds result in mortality (<u>http://www.towerkill.com/science/litt.html</u>). Although it is not definitively understood why bird mortality occurs from communication towers, available literature suggests the risk increases when towers (a) use steady burning lights; (b) have guy wires for support; (c) are taller than 350 feet; (d) are located in areas with frequent inclement weather patterns; (e) are placed in areas with higher density of migrants using the airspace; and (f) are located along ridgelines (Albert Manville, 2013).

Although the proposed tower will be in an area with inclement weather and heavy migratory bird use, the tower will have no lighting or guy wires and will be only 100 feet tall and located on a

property that is below 10 feet in elevation. CDFW and USFWS staff have reviewed the project and believe the tower has been sited and designed to avoid impacts to migratory birds. To ensure the tower is constructed as designed at 100 feet in height without lighting or guy wires, the Commission attaches **Special Condition 4** requiring the submittal of final plans in substantial conformance with the plans submitted in the permit application (Exhibit 3) for the Executive Director's review and approval. In addition, as discussed previously, the Commission attaches **Special Condition 5** requiring that any future improvements or changes to the permitted facility shall require an amendment to CDP 1-16-0346 from the Commission or shall require an additional coastal development permit from the Commission.

A noted previously, the project site is located across South G Street from the Arcata Marsh & Wildlife Sanctuary (Arcata Marsh). The Arcata Marsh contains wetland, riparian, rare plant, and other ESHAs. The ESHA could be adversely affected if nonnative, invasive plant species were introduced in landscaping at the project site. If any of the proposed landscaping were to include introduced invasive exotic plant species, the weedy landscaping plants could colonize (e.g., via wind or wildlife dispersal) the nearby ESHA over time and displace native vegetation, thereby disrupting the functions and values of the ESHA. The Commission therefore attaches **Special Condition 6** to ensure that only native and/or non-invasive plant species are planted on the subject property. The special condition requires the submittal of final landscaping plan for the review and approval of the Executive Director that demonstrate, among other things, that only native and/or non-invasive plant species shall be planted. As conditioned, the proposed project will ensure that the ESHA near the site is not significantly degraded by any future landscaping that would contain invasive exotic species.

In addition, the Commission notes that certain rodenticides, particularly those utilizing blood anticoagulant compounds such as brodifacoum, bromadiolone and diphacinone, have been found to pose significant primary and secondary risks to non-target wildlife present in urban and urban/wildland interface areas. As these target species are preyed upon by raptors or other environmentally sensitive predators and scavengers, the pest control compounds can bio-accumulate in the animals that have consumed the rodents to concentrations toxic to the ingesting non-target species. To avoid this potential cumulative impact to environmentally sensitive wildlife species, Special Condition 6 also contains a prohibition on the use of such anticoagulant-based rodenticides.

Therefore, the Commission finds that the project as conditioned is consistent with Section 30240 of the Coastal Act as the project as conditioned would not result in a significant disruption to any ESHA, would be sited and designed to prevent impacts which would significantly degrade adjacent ESHA, and would be compatible with the continuance of those adjacent habitat areas.

J. HAZARDS

Section 30253 of the Coastal Act states in applicable part:

New development shall do all of the following:

(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

1-16-0346 (PWM, Inc.)

(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs...

Section 30253 requires in part that new development minimizes risk to life and property in areas of high geologic and flood hazards, assures structural integrity and stability, and neither creates nor contributes significantly to erosion. The project entails development in an area subject to significant exposure to geologic and flood hazards including strong earthquake shaking, liquefaction, tsunami inundation, and flooding.

Geologic Hazards

The project site is within a seismically active area in which large earthquakes may be expected to occur during the economic lifespan of the development. The project site is also in an area of high liquefaction potential. As proposed, the three legs of the telecommunications tower will be anchored to concrete piers that will be driven 13 feet into the ground topped by a concrete slab foundation to enhance the geologic stability of the tower. In addition, the applicant has submitted a Soils Report prepared by Whitchurch Engineering and dated June 2016 which contains additional measures to ensure that the proposed development can withstand strong seismic ground shaking or seismic-related ground failure, including liquefaction (Exhibit 7). Among other recommendations, the report recommends that the approximately four-foot-deep layer of uncompacted fill underlying the project site be removed and replaced with compacted, engineered fill. As part of **Special Condition 4**, the Commission requires the applicant to submit final project plans for the Executive Director's review and approval that are consistent with the recommendations contained in the June 2016 Soils Report prepared by Whitchurch Engineering for the facility. To further ensure the stability and structural integrity of the 100-foot-tall tower, Special Condition 4 also requires that the final tower foundation plan is stamped and signed by a licensed engineer.

Flood Hazards

The wireless telecommunications facility is proposed in a low-lying area within the mapped FEMA Zone A 100-year floodplain. The shoreline to the west of the project is protected by a raised railroad embankment, but the drainage ditches that border the property and the grazed seasonal wetlands to the east are tidally influenced through culverts under the railway and South G Street. The property owners received a Flood Elevation Certificate in 2015 stating that the base flood elevation in the area is 9.77 feet and that the elevations adjacent to the existing warehouse range from 8.38 to 9.58 feet in elevation (NAVD 88). As a result, flood waters from storm events may affect development on this site. However, the tower has been designed to withstand flooding. The three legs of the tower will be attached by anchor bolts to concrete piers installed approximately 13 feet deep in the ground to allow for "wet footings" and prevent any instability from ground saturation. In addition, the entire lease area including the equipment cabinets, backup generators, and fuel tanks, will be elevated on concrete pads a minimum of one foot above mean flood level (i.e., at least 10.77 feet in elevation) in order to meet FEMA Flood Zone A requirements.

Although the development as designed will not be at immediate risk of flooding, Humboldt Bay is experiencing the greatest rate of relative sea level rise in the State (due to active land subsidence), with up to 0.9 feet of rise expected by 2030, 1.9 feet by 2050, and 5.3 feet by 2100 (Northern Hydrology & Engineering, 2015). To evaluate the flooding risk of the project resulting from sea level rise, it is useful to examine the expected design life of the development. Due to rapid changes in technology, the telecommunications industry typically uses a 25- to 35-year planning horizon for the service life of transceiver facilities. While data on the precise amortization period for telecommunication facilities can be substantiated from site lease information. The proposed lease term for the facility is structured on an initial five-year period with provisions for five additional five-year extensions for a total of a thirty-year lease term.

The 2050 sea level rise projections can be used to analyze the facility's flooding risk over a presumed design life of 30 years. The current mean monthly maximum water (MMMW) elevation on Humboldt Bay is 7.74 feet (NAVD 88 as measured at NOAA's North Spit Tide Gage) and the average annual king tide elevation is 8.78 feet (NAVD 88). Under worst-case scenario conditions, in 2050, the MMMW elevation will be 9.64 feet and the average annual king tide elevation will be 10.68 feet (as the result of 1.9 feet of sea level rise). As previously mentioned, the proposed improvements will be constructed on concrete slabs at least one foot above the base elevation (i.e., at least 10.77 feet elevation). The proposed development would thus remain safe from regular daily or monthly inundation under worst-case scenario 2050 conditions. However, extreme tides and king tides and/or storm surges can reach up to two feet above tidal baseline elevations, and the facility may be occasionally flooded by extreme tidal events and periods of heavy stormwater runoff. The facility as designed can withstand occasional flooding. In addition, the flood hazard risks of the development are relatively low as the telecommunications structure will not be occupied by anyone.

Relative sea level rise rates are expected to accelerate in the latter half of this century and there is less certainty and a greater range in estimated MMMW elevations for 2100 (2.0 to 5.3 feet). Future risk is compounded by the fact that this stretch of shoreline is protected by a derelict railroad grade that is below ten feet in elevation and is at immediate risk of overtopping by extreme tides, storms, and El Niño events. In 2013, Trinity Associates produced a Shoreline Inventory and Map for Humboldt Bay, and prepared a Shoreline Sea Level Rise Vulnerability Assessment that identified 26.2 miles of shoreline segments (21.0 miles of dike and 5.1 miles of railroad) highly vulnerable to breaching and/or overtopping, that included the railroad to the west of the site (Laird 2013). It is expected that shoreline breaching and overtopping in this area will eventually lead to inundation of the segment of Highway 101 to the east of the site, requiring traffic to be temporarily blocked or re-routed to local service roads. The safety of the facility from flooding and sustained access to the facility from surrounding roadways thus becomes less certain past 2050.

To address this future uncertainty, the Commission attaches **Special Conditions 2** and **3**. Special Condition 2 provides the applicant with a maximum 30-year authorization period corresponding with the anticipated length of the applicant's proposed lease of the site from the property owners. Should the applicant wish to continue use of the site for telecommunications facilities beyond the authorization period identified in Special Condition 2, Special Condition 3 allows the Commission to revisit the threat of flood hazards from sea level rise, storm events, and other

1-16-0346 (PWM, Inc.)

forms of inundation affecting the development at that time and for the expected remaining life of the facility. Special Condition 3 establishes a process that requires submittal of an amendment to the coastal development permit to the Commission prior to the expiration of the time period authorized in Special Condition 2. Special Condition 3 requires that the amendment application include sufficient information for the Commission to consider the updated flood hazards associated with sea level rise, storm events, and other forms of inundation affecting the telecommunications facility and alternatives to minimize such hazards.

In addition, in light of the aforementioned geologic and flooding hazards, the Commission attaches **Special Condition 8**, which requires the permittee to assume the risks of flooding and geologic hazards to the property and waive any claim of liability on the part of the Commission. Given that the permittee has chosen to implement the project despite flooding and geologic risks, the permittee must assume the risks. Special Condition 8 notifies the permittee that the Commission is not liable for damage as a result of approving the permit for development. The condition also requires the permittee to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand the hazards.

As discussed above, the project as conditioned will not eliminate all risk to life and property from geologic and flood hazards. However, all feasible mitigation measures necessary to minimize the flood and geologic risks have been incorporated into the project as conditioned. Therefore, the Commission finds that the proposed project, as conditioned, will minimize risk to life and property from hazards, consistent with Section 30253 of the Coastal Act.

K. ARCHAEOLOGICAL RESOURCES

Section 30244 of the Coastal Act states:

Where development would adversely impact archeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

The project area lies within the traditional territory of the Wiki division of the Wiyot tribe. The tribe is understood to have included three tribal divisions (Patawat, Wiki, and Wiyot), each associated with a water-related resource (the Mad River, Humboldt Bay, and the lower Eel River, respectively) and each speaking a common language (Selateluk). Settlements existed all around Humboldt Bay and along the banks of many of the streams and sloughs in the region. Of particular archaeological significance and sensitivity in the project area is Indian Island and the village of Tuluwat, in the middle of Humboldt Bay. These locations hold special significance and meaning to present-day Wiyot people. Today, representatives of the Wiyot Tribe are the Table Bluff Reservation Wiyot Tribe, the Blue Lake Rancheria, and the Bear River Band of the Rohnerville Rancheria.

At the time that Euro-Americans first made contact in this region, the Wiyot lived almost exclusively in villages along the protected shores of Humboldt Bay and near the mouths of the Eel and Mad Rivers. Although the project is located just inland of the current shoreline of Humboldt Bay, The property consists of diked former tidelands that were part of the bay until the 1850s. Given this history, the three Wiyot area Tribal Heritage Preservation Officers (THPOs) are not concerned with the potential for discovery of archaeological or other cultural resources. Nevertheless, the potential exists for previously unrecorded archeological resources to be located at the site and affected by the development. The project includes excavation of the previously placed fill material where the foundation of the telecommunications facility will be sited. The old fill will be removed down to its boundary with native soils. Some of the native soil material could be scraped and excavated with the removal of the old fill. In addition, some soils will be extracted to install the concrete foundation piers that will extend 13 feet into the ground.

To ensure protection of any cultural resources that may be discovered at the site during construction of the proposed project, the Commission attaches **Special Condition 9**. This special condition requires that if an area of cultural deposits is discovered during the course of the project, all construction must cease and a qualified cultural resource specialist, in conjunction with the Wiyot Tribe, the Bear River Band of Rohnerville Rancheria, and the Blue Lake Rancheria THPOs, must analyze the significance of the find. To recommence construction following discovery of cultural deposits, the permittee is required to submit a supplementary archaeological plan for the review and approval of the Executive Director, who determines whether the changes are de minimis in nature and scope, or whether an amendment to this permit is required.

Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Coastal Act Section 30244.

L. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The City of Arcata served as the lead agency for the project for CEQA purposes and adopted a Mitigated Negative Declarations for the project. Section 13906 of the Commission's administrative regulation requires Coastal Commission approval of CDP applications to be supported by a finding showing the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are any feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effect the proposed development may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. As discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. The findings address and respond to all public comments regarding potential significant adverse environmental effects of the project on coastal resources that were received prior to preparation of the staff report. As conditioned, there are no other feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impacts which the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act to conform to CEQA.

APPENDIX A SUBSTANTIVE FILE DOCUMENTS

Application File for Coastal Development Permit No. 1-16-0346.

- Federal Communications Commission. (2015). Opportunities to reduce bird collisions with communications towers while reducing tower lighting costs. Retrieved from http://wireless.fcc.gov/migratory-birds/Light_Changes_Information_Update_120415.pdf.
- Longcore, T., Rich, C.; and Gauthreaux, S. A. (2008). Height, guy wires, and steady-burning lights increase hazard of communication towers to nocturnal migrants: a review and meta-analysis. The American Ornithologists' Union, 125(2), 485-492.
- Laird, A. of Trinity Associates (2013). Humboldt Bay shoreline inventory, mapping, and sea level rise vulnerability assessment. Prepared for the State Coastal Conservancy.
- Manville, A. (2013). U.S. Fish and Wildlife Service (USFWS) revised voluntary guidelines for communication tower design, siting, construction, operation, retrofitting, and decommissioning. Retrieved from https://www.fws.gov/migratorybirds/pdf/management/usfwscommunicationtowerguidance .pdf.
- Northern Hydrology & Engineering. (2015, April). Humboldt Bay: Sea level rise, hydrodynamic modeling, and inundation vulnerability mapping Final report. Prepared for the State Coastal Conservancy and Coastal Ecosystems Institute of Northern California.

Personal Communications

- Jennifer Olson, Environmental Scientist for the California Department of Fish and Wildlife
- Janet Eidness, Tribal Heritage Preservation Officer for the Blue Lake Rancheria
- Tom Torma, Tribal Heritage Preservation Officer for the Wiyot Tribe
- Alyson Hunter, Senior Planner with the City of Arcata Community Development Department











SITE PLAN
NOTES
• PG&E AND TELCO/FIBER UNDERGROUND FROM EXIS WAREHOUSE.
EXCAVATE 20 YARDS OF FILL MATERIAL. REPLACE W YARDS OF COMPACTED SAND AND GRAVEL.
FILL 34 YARDS OF COMPACTED GRAVEL FILL ON BAL SITE. UTTLITY DITCH
GRADING (CUT & FILL): • EXCAVATE 30 YARDS OF FILL AND REPLACE WITH 30 COMPACTED GRAVEL FILL.
POWER AND TELCO H-FRAME DETAIL
(a) SERVICE METERS GUTTER AMAIN PANEL DOWER, FIBER & TELCO CONDUITS
VICINITY MAP



		ш.	
NO.		A	

SELF-SUPPORTING LATTICE TOWER ELI



		ш	
NO.		A	

SELF-SUPPORTING LATTICE TOWER

ANTENNA MOUN	SNNA TYPE SIZE OPECIMAL COECIMAL	1' X 7") w/(12) 7/8" coax	on RRUS-12	on RRUS A2 Module	o DC6-48-60-1	Arm, 5'	1' X 7") w/(12) 7/8" coax	on RRUS-12	on RRUS A2 Module	0 DC6-48-60-1	Am, 5'	1' X 7") w/(12) 7/8" coax	on RRUS-12	Dre-48-60-1	Am. 5'	1' X 7") #/(12) 7/8" coax	1' X 7") w/(12) 7/8" coax on RRUS-12	1' X 7') w/(12) 7/8" coox on RRUS-12 on RRUS A2 Module
	ANTE & M	6-PANEL (8' X 1	6-Ericsso	6-Ericsso	1-Raycap	3-Cross	6-PANEL (8' X 1	6-Ericaso	6-Ericseo	1-Raycop	3-Cross	6-PANEL (8' X 1	6-Ericsso	1-Poinces	3-Cross	6-PANEL (8' X 1	6-PANEL (8' X 1 6-Ericsso	6-PANEL (8' X 1 6-Ericeso 6-Ericeso





P.O. Box 1032, Eureka, CA 95502 Office: (707) 442-8420 Cell: (707) 499-0901 Fax: (707) 442-8499

September 9, 2016

Ms. Cristin Kenyon North Coast District Program Analyst California Coastal Commission 1385 Eighth Street, Suite 130 Arcata, CA 95521

Re: Existing & Alternative Site Analysis 700 South G St. Arcata, CA 95521 **EXHIBIT NO. 4**

APPLICATION 1-16-0346 PWM, INC. ALTERNATIVES ANALYSIS & VISUAL ANALYSIS PAGE 1 of 18

Dear Ms. Kenyon:

PWM Inc. has reviewed possible locations for a new telecommunication site around the southern portion of Arcata, in order to service the City of Arcata, Sunny Brae, Bayside, Indianola and the surrounding areas, to fill gaps in coverage, add additional capacity, improve, extend and provide additional wireless service. The coverage gaps and lack of capacity prohibit the ability to provide dependable wireless service including in home coverage for data, voice, digital transmissions and other services for smartphones, tablets and other electronic devices.

Increasing demand for these application services, including data and voice transmissions, require sites with adequate coverage and capacity. As a result, certain criteria has been established to provide a site that would meet these needs and provide the least intrusive project to the surrounding area. These criteria are as follows:

- 1. Site must meet line of site criteria, coverage requirements and capacity objectives.
- 2. Site must be located as close as feasible to downtown Arcata and must have a line of site north along Highway 101 and Humboldt State University, south along Highway 101 and Old Arcata Road, east to Bayside, and west along Somoa Blvd. and to the surrounding residential and commercial areas.
- 3. A lattice tower design of at least 100 feet in height.
- 4. Site should not require major, costly utility extensions.
- 5. Site should allow for adequate room for the location of site improvements and the co-location of additional wireless carriers without hindering the property owner's remainder use.
- 6. Site must avoid major grading and new road construction.
- 7. Site development costs to be in a reasonable cost range.
- 8. The 100 foot lattice tower or monopole will allow for a total of (4) wireless carriers which will limit the need to install additional towers in the Arcata area.

Existing & Alternative Site Analysis Summary

Existing Site #1: North Bank Monopole; North of chosen location; Site Elevation: 135 ft. (Verizon Wireless, AT&T, T-Mobile, Sprint, U.S. Cellular & Clearwire)

- 1. Verizon Wireless is presently located at this site;
- 2. Site does not meet line of site criteria, coverage requirements or capacity objectives;
- 3. Monopole is at full capacity (i.e. Foundation = 100% and Base Plate = 99%).

Ms. Cristin Kenyon North Coast District Program Analyst California Coastal Commission September 9, 2016 Page 2

Existing Site #2:	Blue Lake Lattice Tower; Northeast of chosen location; Site Elevation 594 ft. (T-Mobile)
	1. Site does not meet line of site criteria, coverage requirements or capacity objectives.
Existing Site #3:	Blue Lake Monopole; Northeast of chosen location; Site Elevation 580 ft.
	1. Site does not meet line of site criteria, coverage requirements or capacity objectives.
Existing Site #4:	HSU Bookstore Rooftop Site; Northeast of chosen location; Site Elevation: 190 ft. (AT&T)
	 Site does not meet line of site criteria, coverage requirements or capacity objectives; Site would be located too close to the existing HSU Monopine.
Existing Site #5:	HSU Monopine; Northeast of chosen location; Site Elevation: 282 ft. (Verizon Wireless, U.S. Cellular & Sprint)
	 Verizon Wireless is presently located at this site; Site does not meet line of site criteria, coverage requirements or capacity objectives; Site is near full capacity.
Existing Site #6:	HSU Sciences Rooftop Site; Northeast of chosen location; Site Elevation 155 ft. (T-Mobile)
	 Site does not meet line of site criteria, coverage requirements or capacity objectives; Site would be located too close to the existing HSU Monopine.
Existing Site #7:	Baywood Monopole; East of chosen location; Site Elevation: 230 ft. (Verizon Wireless, AT&T & U.S. Cellular)
	 Verizon Wireless is presently located at this site; Site does not meet line of site criteria, coverage requirements or capacity objectives; Site elevation is not sufficient.
Existing Site #8:	Fickle Hill Lattice Tower #1; Southeast of chosen location; Site Elevation: 1,746 ft. (AT&T & T-Mobile)
	 Site does not meet line of site criteria, coverage requirements, or capacity objectives; Site would be located too close to Fickle Hill Lattice Tower #2.
Existing Site #9:	Fickle Hill Lattice Tower #2; Southeast of chosen location; Site Elevation: 1,820 ft. (Verizon Wireless, U.S. Cellular & Sprint)
	 Verizon Wireless is presently located at this site; Site does not meet line of site criteria, coverage requirements or capacity objectives.
	Alternative Sites
Alternative Site #	1: 1680 Somoa Blvd., Arcata, CA 95521; Northwest of chosen location; Site Elevation: 19 ft.

- Unable to reach an agreement with unwilling landowner;
 Site would not have been compatible for more than one carrier.

2 of 18

Alternative Site #2: 520 South G St., Arcata, CA 95521; North of chosen location; Site Elevation: 18 ft.

1	α (1) (1)	C (1 1 (*	C 11 1	•
	Site does not allow	for the co-location	of additional	carriers.
		101 000 00 10000000	01 0000101011001	••••••••••••

Alternative Site #3: 550 South G St., Arcata, CA 95521; North of chosen location; Site Elevation: 18 ft.

1. The height of the warehouse does not provide an acceptable centerline to meet the carrier(s) line of site criteria, coverage requirements or capacity objectives.

Alternative Site #4: Existing PG&E 115' 60Kv High Power Line Lattice Tower; South G St., Arcata, CA 95521; West of chosen location; Site Elevation: 16 ft.

- 1. High power line lattice tower was not constructed to accommodate the proposed equipment loading for (4) telecommunication carriers;
- 2. Poor road access;
- 3. Located in a wetland area.

Alternative Site #5: Arcata Wastewater Treatment Plant; 569 South G St., Arcata, CA 95521; Southwest of chosen location; Site Elevation: 17 ft.

1. Site does not meet the line of site criteria, coverage requirements or capacity objectives.

Alternative Site #6: Existing Bicoastal Media 150' Guyed Tower; 890 South G St., Arcata, CA 95521; Southwest of chosen location; Site Elevation: 11 ft.

- 1. Site does not meet the line of site criteria, coverage requirements or capacity objectives;
- 2. Existing guyed tower was not constructed to accommodate the proposed equipment loading for (4) telecommunication carriers.

Alternative Site #7: Existing Billboards; Highway 101, Arcata, CA 95521; East of chosen location; Site Elevation: 12 ft.

- 1. Billboards do not provide an acceptable centerline to the meet the carrier(s) line of site criteria, coverage requirements or capacity objectives;
- 2. Billboards were not constructed to accommodate the proposed equipment loading for (4) telecommunication carriers.

Respectfully,

PWM Inc.

Thomas J. McMurray Jr.

Thomas J. McMurray Jr. President

enclosure:







⁶ of 18





⁸ of 18



⁹ of 18



¹⁰ of 18



¹¹ of 18



¹² of 18



















Erosion/Sediment Control Practice Plan

610 9th Street Fortuna, CA 95540

Phone: (707) 725-6926



June 17, 2016

PWM INC. Thomas J. McMurray Jr. P.O. Box 1032 Eureka, CA 95502

Re: Soils Report Cellular Tower Foundation Site: Arcata APN: 503-211-26 700 So. G Street Arcata, CA

EXHIBIT NO. 7

APPLICATION 1-16-0346 PWM, INC. SOILS REPORT EXCERPTS PAGE 1 of 6

JN: PWM1601

Dear Mr. McMurray,

Per your request, on June 13th, 2016, I visited the above referenced site in order to perform a site soils investigation for the construction of a cellular tower foundation and small ancillary structures to be built at this lease site. This lease site (which measures approximately 50' x 50' in size, and is located behind an existing commercial business (Roto-Rooter) on G street in Arcata) is currently unimproved, and appears to have had approximately 4' of fill soil placed on site sometime in the past. The scope of this report is limited to an investigation of the site soils at the location of the proposed cell tower foundation and small ancillary structures to be located adjacent to the cell tower only. We have not investigated the stability/construction of the remainder of this parcel, any existing structures, or the overall geologic stability study of the building site or its surrounding area. At the time of my site visit a visual review of the building site was conducted to identify any obvious signs of geologic instability. We have not performed an in depth geologic stability study or overall geologic stability study of the lease site or the immediate surrounding area. I understand that a raft type foundation approximately 20' x 20' x 2' deep is proposed for the foundation of this cell tower and slab on grade foundations are proposed for the small ancillary structures.

The access to this building site is at the back of the existing commercial business (Roto-Rooter) at 700 South G Street in Arcata. Elevation at this site is approximately 14 feet above mean sea level. This building area is located at the Northern end of Humboldt Bay amongst several sloughs that lead into the bay. Our site investigation revealed that this low-lying area was at one time slightly raised in elevation by the addition of approximately 4' of import fill soil. The site generally slopes down toward the East at a 1%-2% slope.

During my site inspection I observed the excavation of two test holes with a backhoe. Soil to 43"-47" below grade generally consisted of fill soil, (silty sandy river run, bluish grey sand). Below this was a slight grass layer (the original ground surface). Below this was native slightly silty clay, blue, moist, dense, to 7' below grade. Groundwater was encountered atop this native soil layer, approximately 43"-47" below grade.

C:\Users\ayf\Desktop\Soils Report_PWM1601.docx

The following information pertains to the seismic design loading for the proposed structures:

- 1. Seismic importance factor I=1.0, risk category II
- 2. Mapped spectral response acceleration Ss=2.814, S1=1.097
- 3. Site Class = D
- 4. SDs=1.876 SD1=1.097
- 5. Seismic design category = E
- 6. Site Latitiude: 40.8558° Site Longitude: -124.0883

A peak ground acceleration of Ss/2.5 shall be used for seismic design.

Although we have not performed an in-depth geologic study of this building site or surrounding area, the geologic nature of the property appears to be stable. There is no visual indication in the immediate surrounding area of any geologic instability, earthquake faults, or ground water that would be detrimental to the building site. According to the Humboldt County General Plan geologic map, this parcel is classified as zone 1, low instability.

This parcel is located in the vicinity of several earthquake faults as defined by the Alquist-Priolo Earthquake Fault Zoning Act. Faults within these zones are considered to have been active in quaternary time. It should be noted that the attached maps may not show all potentially active faults, either within the special studies zone or outside their boundaries. However, the identification of these potentially active faults and the location of such fault traces are based upon the best available data to date.

The north coast area of California where this site is located is seismically very active and possibly subject to earthquakes of large magnitude which can produce significant ground shaking. This high to very high level of seismic hazards is typical for Northern California; residence and business owners routinely assume this risk. In general there are five sources of large magnitude earthquakes which could affect the project area. These sources include the Mendocino Fault Zone located some 20 miles northeast of Shelter Cove, the San Andreas Fault which leads out to sea at Point Delgada, the subducted Gorda Oceanic Crustal Plate North of Shelter Cove, the complex northwesterly oriented systems surrounding the Humboldt Bay area (including the Little Salmon, Mad River and Gorda Fault Zones), and the Cascadia Subduction Zone located offshore approximately 20 miles west of the site. The Coastal Range Thrust Fault is located approximately 20 miles northeast of this building site. The San Andreas fault is located approximately 45 miles southwest of the site.

The Little Salmon Fault zone is located approximately 12 miles southwest of the site. The Mad River Fault zone is located approximately 4 miles north of the site. The Fickle Hill Fault zone is located approximately 1 mile northeast of the site. The North Spit/Bay Entrance/Buhne Point Fault zone is located approximately 8 miles southeast of the site. There are several thrust fault zones located 6 miles to 12 miles northeast of the building site. These fault systems are considered to have been active during Historic, Holocene, and Pleistocene times, and are expected to have a relatively high potential for surface rupture.

According to the State of California Department of Conservation Division of Mines and Geology Special Publication 115 (1995) planning scenario, this parcel is located in an area of high liquefaction potential.

CONCLUSIONS AND RECOMMENDATIONS

In my opinion, soils at this site are capable of providing adequate support for proposed development. The large raft type foundation and smaller ancillary structures could be safely constructed on this site. However, the developer is still responsible to ensure that this development conforms to all county, state and local requirements. The following construction considerations are presented to aid in project planning. They may not be comprehensive; other issues may arise which will require coordination of the owner's goals, the consultant's design assumptions, and the contractor's construction methods and capabilities. The proposed commercial structure could be safely built at this site, provided development is in compliance with the following recommendations and the current California Building Code (C.B.C.):

1. Site Preparation

The surface of the site in areas where the building pads will be located shall be stripped of all loose topsoil/fill soil to expose the underlying blue silty clay native soils. Uncompacted or incompetent fill soils shall be removed down to competent underlying soils. The resulting excavation can then be backfilled (as necessary) in accordance with recommendation #2 of this report. There may be an unknown potential for excavations to encounter abandoned utilities disturbed/fill soils. Any abandoned utilities or disturbed/additional fill which are located in an area of proposed foundation construction should be removed, and excavations should extend down to native soils prior to placement of any fill.

2. Fill Materials

All areas to receive fill should be cleared of all organic top soil, trash material and soils which are not native soils as described above. The areas to receive fill should be "benched." This area should not slope more than 2%. Fill banks should not exceed a 2:1 slope. Exposed soils should be scarified a minimum of 4 inches both ways prior to placement of the first fill lift.

All areas to receive fill should be observed by a registered civil engineer prior to placement of fill. Imported well graded river-run gravel should be used as a fill material. Engineered fill should be placed in thin lifts (± 6") and compacted to a minimum relative compaction rate of ninety percent as per ASTM Test Method D 1557. Any fill which is to be placed under driveway or sidewalk areas should be compacted to 95% relative compaction. Compaction testing should occur a minimum of every three vertical feet. An equal bearing value is assigned to engineered fill as was given to native undisturbed soils as designed above.

3. Ancillary Structure Foundation

According to table 1804.2 of the CBC, the silty sandy sub soils at this site are assigned an allowable soils bearing [pressure pf 1500 p.s.f. (pounds per square foot). However, as a mitigating factor for the identified potential of liquefaction at this site, and because the foundation bearing pads for the equipment, components, and materials will be incorporated into the proposed slab (s), a soil bearing pressure of 1000 p.s.f. should be used for foundation design. This value should not be increased by 1/3 for a combination of loading which includes wind and seismic loads.

A slab on grade foundation with conventional footings may be utilized provided that any existing topsoil, any fill soil and any native uncontrolled, uncompacted organic soil is removed prior to placement of fill placed and compacted as per recommendation #2.

4. Concrete Slabs

Conventional floor section concrete slabs shall be 4 inches in thickness (nominal) with #4 reinforcing bar placed 24 inches on center each way. The slab shall bear upon a minimum of 2 inches of sand, over a 6 mil vapor barrier over a minimum 4 inch free draining crushed rock layer which bears on engineered fill soil (which has been installed in accordance with recommendations #1 and #2 above) and serves as a capillary break between the sub grade and the slab. Crushed rock graduation shall require 100% passage of a 1" sieve and no passage of a No. 4 sieve. If gravel fills exceed 1 foot, they should be placed and compacted as engineered fill as described in #2. All rebar should be located mid-height of the slab, and be positively held in place by the use of rebar support chairs or dobies that are wire connected to the rebar.

5. Drainage

Rain gutters are to extend along all roof lines and lead to down spouts; these down spouts should lead to pipes or well established drainage ways which will carry drainage away from the building site and away from any areas of fill or foundations. All drainage must be controlled to flow away from the building site, in a non-erosive manner, toward established drainage ways. We recommend that a minimum positive drainage gradient of 5% be established away from all foundations and footings for a minimum horizontal distance of 10 feet, with the remainder of the building site grading establishing a minimum horizontal positive drainage of 1% away from foundations and footings to approved drainage controls/facilities. Surface water uphill of this building should be controlled to flow around and away from the building site toward established drainage ways. Under no circumstance should uncontrolled surface water drainage be allowed to flow across the building site or over any cut or fill banks. Drainage improvements will need to be continually maintained and regularly inspected to assure their effectiveness in directing the surface water away from the building site.

6. Utility Trenches

Utility trench backfilling beneath areas to support improvements should be completed prior to subgrade compaction. Utility trench backfill should be compacted to a minimum of 90%. of the maximum dry density per ASTM-D-1557, and to a minimum of 95% in the upper six inches in areas to receive baserock and finish surface. Utility trench backfill should be compacted to a minimum of 85% in unimproved areas to prevent excessive subsidence.

The contractor should use appropriate equipment and methods to avoid damage to utilities and/or structures during placement and compaction of backfill materials. Trench backfill should be placed in 8 inch lifts, moisture conditioned to within 2 percent of optimum and compacted to achieve the minimum relative compaction. Lift thickness can be increased if the contractor can demonstrate that the minimum compaction requirements can be achieved. Jetting of trench backfill is not recommended to compact the backfill soils.

7. Tower Foundation

The tower foundation should bear on the undisturbed dense, slightly silty blue clay subsoil layers. The native soil at this level should be assumed to be a class 5 material. All structural foundations shall be located a minimum of 18" below finish grade. Spread footings and any

foundation walls should be reinforced, and constructed per the current C.B.C.. All foundation design and construction shall be in conformance with the current C.B.C..

8. Subsurface Construction

All temporary and permanent earth retaining structures which are placed greater than 12" below grade shall be designed to withstand the effects of hydrostatic pressure. Ground water levels can fluctuate with the seasons, storms (precipitation) events, runoff and other factors. Significant variations in ground water levels may occur from those observed during our investigation.

The active and at-rest pressure of the native soils saturated by ground water may assume to be equal to the pressures developed by a fluid with a density of 92 and 106 pounds per cubic foot, respectively. The at-rest pressure shall be used in determining lateral earth pressures against walls which are free to deflect; this includes temporary walls for trench shoring. For walls which are free to deflect at least one percent of the wall height at the top, the active earth pressure may be used.

9. Pavement

All fill soil, top soil, and incompetent native soils are to be removed from underneath proposed roadway, parking lot, and driveway areas. Any proposed paving for this project shall consist of 0.2' of type "B" asphalt concrete, underlain by 0.67' of class 2 aggregate base (R-78min), underlain by river run sub-base fill soil placed in accordance with recommendation #2. The upper 8 inches of subgrade beneath aggregate base or sub-base shall be scarified; moisture conditioned as necessary and compacted to at least 95 percent of the maximum dry density as determined by ASTM Test Method D1557-78. Prior to backfilling the base soil, the resulting excavation must be inspected by this office. A geotextile fabric (AMOCO 2002) or approved equivalent) shall be placed (per manufacturers specifications) over the prepared base soil in order to prevent migration of fine soil between fill and base soil, and to improve the structural section strength at the subgrade level.

The pavement section is based on an assumed R-value of 45 minimum, and a traffic index of 6.0. It shall be noted that if pavements are constructed prior to building construction, the traffic index value may be too low and need to be increased. If pavements are placed prior to construction, or if more frequent heavy truck traffic is anticipated, this office shall be contacted to re- evaluate the traffic index values.

Closing

It is assumed that the test hole that was observed at the site is representative of subsurface conditions throughout the construction site. If it is found that subsoil conditions differ from those described, the conclusions and recommendations of this report shall be considered invalid until the project is again reviewed by this office. Further discussion is possible at that time. Although this site is identified as being prone to liquefaction, the depth of foundation excavations and presence of cohesive deeper subsoils preludes any potential for liquefaction at this specific site. Provided foundation and footing design and dimensions are based upon given soil bearing values and recommendations given above settlement is not expected to exceed 3/4". Total uniform settlement is not expected to exceed one inch over the economic life span under the same loading conditions. Initial construction settlement is not expected to exceed to exc

Determination of any potential environmental hazards due to the possible presence of hazardous and/or toxic waste is outside the scope of this report.

If you have any questions or comments regarding this soils report, feel free to contact me at your convenience.

Sincerely, 6.20-16 Terry O'Reilly, P.E.

Terry O'Reilly, P.E RCE # 49506 TOR/kcb